



County of Los Angeles CHIEF EXECUTIVE OFFICE

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LOS ANGELES, CALIFORNIA 90012
(213) 974-1101
<http://ceo.lacounty.gov>

WILLIAM T FUJIOKA
Chief Executive Officer

September 18, 2007

The Honorable Board of Supervisors
County of Los Angeles
383 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, CA 90012

Dear Supervisors:

**DEPARTMENT OF PUBLIC WORKS: WIRELESS COMMUNICATIONS SYSTEM
FOR THE TRAFFIC MANAGEMENT SYSTEM
(SUPERVISORIAL DISTRICTS 1, 2, 4, AND 5)
(3 VOTES)**

**CIO RECOMMENDATION: APPROVE (X) APPROVE WITH MODIFICATION ()
DISAPPROVE ()**

IT IS RECOMMENDED THAT YOUR BOARD:

1. Approve Amendment 1 to Agreement No. 1590 with Systems Analysis & Integration, Inc., a California corporation d.b.a. Systems Integrated, located in Orange, California, for expansion of the Wireless Communications System for the Traffic Management System. The amendment will become effective upon Board approval and execution by the parties. The agreement as amended will terminate upon expiration of a two-year warranty period following the County's final acceptance of all required deliverables. The agreement as amended will have a maximum contract sum of \$10,408,289 with authorization for the Director of Public Works or his designee to increase that amount up to an additional \$500,000 for unforeseen, additional work within the scope of the agreement, including additional signalized intersections, if required.
2. Authorize the Director of Public Works or his designee to execute the amendment; to approve contractor's entity change in accordance with your Board's policy on contractor mergers/acquisitions; to approve and execute further amendments to the agreement; to incorporate necessary changes within the scope of work; and to suspend work under the agreement if, in the opinion of the Director of Public Works, it is in the best interest of the County to do so.

Board of Supervisors
GLORIA MOLINA
First District

YVONNE B. BURKE
Second District

ZEV YAROSLAVSKY
Third District

DON KNABE
Fourth District

MICHAEL D. ANTONOVICH
Fifth District

PURPOSE/JUSTIFICATION OF RECOMMENDED ACTION

The purpose of the recommended action is to expand the County's Wireless Communications System (WCS) and Closed-Circuit Television (CCTV) network, enabling remote traffic management at an additional 936 signalized intersections in the unincorporated area of the County and within numerous cities, thereby coordinating traffic signals and speeding traffic flow.

Implementation of Strategic Plan Goals

The Countywide Strategic Plan directs that we provide Service Excellence (Goal 1), Organizational Effectiveness (Goal 3), and Community Services (Goal 6). Systems Integrated has specialized expertise to provide this commuter- and business-friendly service economically, efficiently, and in a responsive manner.

This project is a component of the Subregional Traffic Forum Intelligent Transportation System, which is included in the Fiscal Year 2007-08 Business Automation Plan.

FISCAL IMPACT/FINANCING

There will be no impact to the County General Fund. The recommended amendment increases the amount of the agreement by \$9,943,289 (from \$465,000 to an amended maximum contract sum of \$10,408,289). In addition, the Director of Public Works (Director) will be authorized to augment the maximum contract sum by up to \$500,000 for unforeseen, additional work including additional signalized intersections that may arise during the progress of the work. The increase in the project cost authorized by this amendment is included in the Fiscal Year 2007-08 Proposition C Local Return Fund Budget. The project expansion authorized by the amendment will be funded by numerous Los Angeles County Metropolitan Transportation Authority Call for Projects Proposition C Discretionary Grant Funds in the amount of \$8,897,173 and County matching funds in the amount of \$1,046,116.

FACTS AND PROVISIONS/LEGAL REQUIREMENTS

On March 14, 2006, Item 29, your Board entered into the agreement with Systems Integrated for the turnkey implementation (including design, acquisition, installation, integration, activation, and acceptance testing) of the WCS to provide continuous and uninterrupted data communications between the County's Kimley-Horn Integrated Transportation System (KITS) traffic signal control system and approximately 51 signalized intersections in the County's South Bay area in the vicinity of Interstate-105 and Interstate-405 Freeways. This implementation is nearly complete.

The original terms of the agreement provided that, subject to County's approval of the contractor's work under the agreement, the contractor would have the opportunity to participate in the next phase of the project.

In that phase, the County would bolster the WCS by adding up to an additional 1,000 signalized intersections and up to 50 additional CCTV cameras. The Department of Public Works (Public Works) has been very pleased with the work completed by the contractor under the agreement to date and recommends proceeding with the System Expansion Opportunity described in the agreement (with one additional CCTV camera, for a total of 51).

The WCS, coupled with the installation of a centralized traffic control system, enables the County and cities to coordinate and synchronize traffic signals on the major streets and highways to facilitate and speed traffic flow. The time savings yields cost benefits for users of the streets and highways and quality-of-life improvements for commuters. Additionally, having a communication system in place provides for a means to notify maintenance staff if there is a problem with a traffic signal operation due to equipment failure.

The attached amendment will be effective upon Board approval and execution by the parties and will keep the agreement in effect until the expiration of a two-year warranty period following the County's final acceptance of all the deliverables under the agreement as amended.

Prior to the Director executing the amendment, which will be substantially similar to the attached form, the contractor will sign and County Counsel will review as to form.

ENVIRONMENTAL DOCUMENTATION

In accordance with Section 15378(b)(4) of the California Environmental Quality Act (CEQA) Guidelines, approval of the recommended action does not constitute a project and, hence, is not subject to the requirements of CEQA.

CONTRACTING PROCESS

Public Works has determined that the Living Wage Program (County Code Chapter 2.201) does not apply to the agreement as amended.

IMPACT ON CURRENT SERVICES (OR PROJECTS)

There will be no impact on current County services or projects resulting from the performance of the recommended services. The implementation of the communications system, and subsequent traffic control system, will allow for enhanced operation of the traffic signals and decrease response time for traffic signal maintenance services.

CONCLUSION

Please return one adopted copy of this letter to the Department of Public Works, Administrative Services Division.

Respectfully submitted,



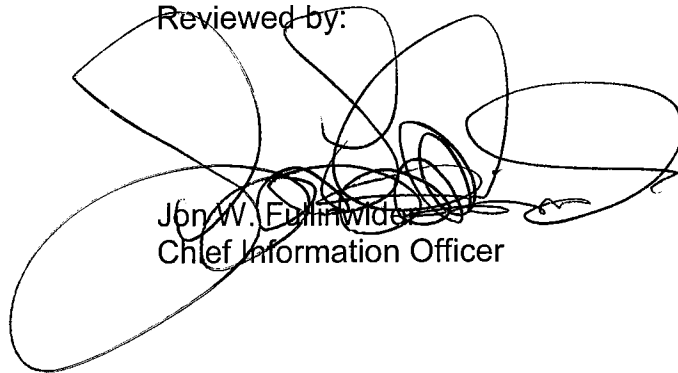
WILLIAM T FUJIOKA
Chief Executive Officer

WTF:DLW
GZ:dw

Attachment

c: Chief Information Office
County Counsel
Department of Public Works (Budget/Fund Management, Chief Information Office,
Programs Development, Traffic and Lighting)

Reviewed by:



Jon W. Fullinwider
Chief Information Officer

CIO ANALYSIS

DEPARTMENT OF PUBLIC WORKS WIRELESS COMMUNICATIONS SYSTEM FOR THE TRAFFIC MANAGEMENT SYSTEM

CIO RECOMMENDATION: ☒ APPROVE ☐ APPROVE WITH MODIFICATION
☐ DISAPPROVE

Contract Type:

☐ New Contract ☒ Contract Amendment ☐ Contract Extension
☐ Sole Source Contract ☐ Hardware Acquisition ☐ Other

New/Revised Contract Term: Base Term: 6_ Yrs # of Option Yrs: 2 Yr warranty

Contract Components:

☒ Software ☒ Hardware ☒ Telecommunications
☒ Professional Services

Project Executive Sponsor: Bill Higley, Deputy Director, DPW

Budget Information :

Y-T-D Contract Expenditures	\$ 465,000
Requested Contract Amount	\$ 9,943,289
Sub Total (without Contingency)	\$10,408,289
Requested Contingency	\$ 500,000
Aggregate Contract Amount	\$10,908,289

Project Background:

Yes	No	Question
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is this project legislatively mandated?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is this project subvented? If yes, what percentage is offset? 89%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is this project/application applicable to (shared use or interfaced) other departments? If yes, name the other department(s) involved?

Strategic Alignment:

Yes	No	Question
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is this project in alignment with the County of Los Angeles Strategic Plan?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is this project consistent with the currently approved Department Business Automation Plan?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does the project's technology solution comply with County of Los Angeles IT Directions document?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does the project technology solution comply with preferred County of Los Angeles IT standards?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	This contract and/or project and its milestone deliverables must be entered into the Information Technology Tracking System (ITTS).

Project/Contract Description:

The purpose of the contract is to expand the County's traffic management Wireless Communications System (WCS) and closed-circuit television (CCTV) network from 51 signalized intersections to an additional 936 in various unincorporated areas of the County and within numerous cities. The WCS and CCTV network transmits traffic signals and video data between signal controllers and various field Traffic Management Centers (TMC) via wireless broadband communications. Phase II of the WCS contract includes the network design, installation of cables, radio equipment and diagnostic software for the 936 additional intersections.

Background:

The scope of work for the WCS has been divided into two phases. Phase I consisted of the design and deployment of the WCS and CCTV network to 51 signalized intersections in the County's South Bay area. Phase II expands the WCS and CCTV network to 936 signalized intersections in the County's Gateway Cities, Pomona Valley, San Gabriel Valley and other South Bay areas. It was stipulated in the initial contract that contingent upon successful completion of Phase I, the WCS and CCTV network may be expanded to an additional 936 intersections. Based on the contractor's performance and successful deployment of Phase I, the Department recommends negotiating with the contractor for completion of Phase II.

Project Justification/Benefits:

This project supports the County's goal of coordinating and synchronizing traffic signals for major streets and highways to facilitate and enhance traffic flow. The benefits will include time saving cost benefits for users of the streets and highways and quality-of-life improvements for commuters.

Project Metrics:

Project success will be validated and quantified when the radio equipment and cables are installed and data is received and interpreted by the diagnostic software installed at city TMC locations and the County's traffic control system (TCS).

Impact On Service Delivery Or Department Operations, If Proposal Is Not Approved:

Phase II of the WCS contract is an integral component of the County's efforts to coordinate and synchronize traffic signals on major streets and highways. Phase II will enable traffic management personnel to monitor and control traffic signals and view, control and share live video from closed circuit television cameras mounted on various intersections within the County. Failure to proceed with this project will impede efforts to accomplish this objective and the larger goal of coordinating and synchronizing traffic signals Countywide.

Alternatives Considered:

The use of leased telephone lines vs. wireless broadband communications was considered and analyzed. Though the bandwidth capabilities of leased lines are greater than wireless, wireless bandwidth has proven acceptable for this project and proven to be significantly more cost-effective.

Project Risks:

The risks associated with this project include possible challenges from competing vendors. The Phase II scope, increasing the number of intersection signals from 51 to 936, represents an increase of \$9.9 million (from \$465,000 to \$10,408,289). The significant expansion in the project scope and cost may incite a competing vendor to protest.

Also, wireless signals are vulnerable to security attacks and are constrained by a number of variables, including the amount of spectrum (the number of frequencies) authorized to transmit/receive, the frequency itself, and possible interference, all which can also impeded wireless bandwidth.

Risk Mitigation Measures:

With respect to the potential for protest from competing vendors, the Department has concluded that this risk is very low. While any party *could* protest the Department's expansion of the project to its second phase without rebidding, the likelihood of the vendor prevailing would be very minimal. This conclusion was based on the Department's review of the originating Phase I WCS RFP and associated bid scoring tools. Those documents all emphasized and included consideration that the Department would retain the option of proceeding to a much larger Phase II if vendor performance in Phase I was successful.

With respect to the risk of Wireless technology security threats and signal reliability, these risks have been mitigated by ensuring that the WCS radios Minimum Technical Requirements will support 256 bit encryption and both Ethernet and over-the-air encryption. Regarding the risk of signal reliability, the radios and antennas are required to have the flexibility to support a wide range of license-free frequency bands. This will mitigate the threat of signal interference.

Financial Analysis:

Phase II of the WCS will be funded by numerous Los Angeles County MTA Call for Projects Proposition C Discretionary Grant Funds and County matching funds. The recommended Amendment increases the amount of the Agreement by \$9,943,289 (from \$465,000 to \$10,408,289). In addition, \$500,000 is recommended as a contingency fund for unforeseen additional work related to the identified scope, bringing the overall Contract maximum to \$11,373,289.

CIO Concerns:

The Department's successful completion of Phase I has eliminated any technical concerns for the Phase II project. The CIO's office was initially concerned that the \$9.9 million expansion, without rebidding, was not justified. However, the Department has reviewed the original solicitation and Board approved Agreement, and has concluded that this expansion was sufficiently identified within the original RFP. The Department has also conducted an informal pricing survey to ensure the vendor's Phase II equipment costs are still competitive.

CIO Recommendations:

The CIO recommends approval of this Phase II amendment.

CIO APPROVAL

Date Received: 8/30/07

Prepared by: [Signature]

Date: 9/2/07

Approved: [Signature]

Date: 9-5-07

**AMENDMENT 1 TO CONTRACT NO. 1590
WIRELESS COMMUNICATION SYSTEM FOR THE
TRAFFIC MANAGEMENT SYSTEM**

THIS AMENDMENT, made and entered into this ____ day of _____, 2007, by and between the COUNTY OF LOS ANGELES, a subdivision of the State of California, a body corporation and politic (hereinafter referred to as COUNTY) and Systems Analysis & Integration, Inc., d.b.a. Systems Integrated, a California corporation (hereinafter referred to as CONTRACTOR).

WITNESSETH

WHEREAS, Contract No. 1590 (Agreement) was entered into between the COUNTY and the CONTRACTOR on March 14, 2006, for the development and implementation of the Wireless Communications System (WCS) for the COUNTY'S Traffic Management System (TMS) with a Maximum Contract Sum of \$465,000 plus 10 percent of that sum for unforeseen, additional work;

WHEREAS, Section N (System Expansion Opportunity) of Exhibit B (Statement of Work) of the Agreement provided that at any time following the COUNTY'S issuance of a notice to proceed for deployment of the WCS under the Agreement, the COUNTY might choose to negotiate an extension of the work for similar WCS deployments at up to one thousand (1,000) additional signalized intersections and up to 50 additional Closed-Circuit Television (CCTV) camera locations (such extension of the WCS project, Phase II) ; and

WHEREAS, the COUNTY now wishes to engage the CONTRACTOR'S services for Phase II of the WCS project, and the CONTRACTOR wishes to render such services at the prices, and upon the terms and conditions, set forth in the Agreement and this AMENDMENT;

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the COUNTY and the CONTRACTOR agree that the Agreement shall be amended as follows:

FIRST: The first paragraph of the Agreement is amended to correct the name of the CONTRACTOR from Systems Integrated, a California corporation, to: Systems Analysis & Integration, Inc., a California corporation d.b.a. Systems Integrated.

SECOND: Subparagraph 1.1 (Agreement) of the Agreement is hereby deleted in its entirety, and is replaced with the following new Subparagraph 1.1 (Agreement):

- 1.1 Agreement. The provisions of this base document along with Exhibits A, B, C, D, E, F, G, H, I, L, L-1, L-2, L-3 and L-4 attached hereto, and Exhibits J and K, not attached hereto, all described in Paragraph 1.2 below and incorporated herein by reference, and any schedules attached hereto and thereto, collectively form and are referred to throughout and hereinafter as the Agreement. This Agreement shall

constitute the complete and exclusive statement of understanding between COUNTY and CONTRACTOR and supersedes any and all prior or contemporaneous agreements, written or oral, and all communications between the parties relating to the subject matter of this Agreement.

THIRD: Subparagraph 1.2 (Interpretation) of the Agreement is hereby deleted in its entirety, and is replaced with the following new Subparagraph 1.2 (Interpretation):

- 1.2 Interpretation. In the event of any conflict or inconsistency in the definition or interpretation of any word, responsibility, schedule, or the contents or description of any Tasks, subtask, Deliverable, goods, service, or other Work, or otherwise, such conflict or inconsistency shall be resolved by giving precedence first to this base document and then to the Exhibits according to the following priority:
- 1.2.1 Exhibit A – Additional Terms and Conditions
 - 1.2.2 Exhibit B – Statement of Work
 - 1.2.3 Exhibit L – Supplemental Statement of Work
 - 1.2.4 Exhibit L-1 – Phase II Intersections
 - 1.2.5 Exhibit L-2 – Phase II CCTV Camera Locations
 - 1.2.6 Exhibit L-3 – Proposed and Existing Hard-Wired Communications
 - 1.2.7 Exhibit L-4 – Phase II Schedule of Deliverables and Payments
 - 1.2.8 Exhibit C – Schedule of Deliverables and Payments
 - 1.2.9 Exhibit D – Third Party Software
 - 1.2.10 Exhibit E – Sample Subcontract
 - 1.2.11 Exhibit F – CONTRACTOR'S Employee Acknowledgement, Confidentiality & Assignment of Rights
 - 1.2.12 Exhibit G – Task/Deliverable Acceptance Certificate
 - 1.2.13 Exhibit H – Internal Revenue Service Notice 1015
 - 1.2.14 Exhibit I – Safely Surrendered Baby Law Fact Sheet
 - 1.2.15 Exhibit J – Request for Proposals (Incorporated by Reference)

1.2.16 Exhibit K – CONTRACTOR'S Proposal (Incorporated by Reference)

FOURTH: A new Subparagraph 2.31 is hereby inserted immediately following Subparagraph 2.30 of the Agreement to read as follows:

2.31 Phase II means the work described in Exhibit L (Supplemental Statement of Work) to this Agreement.

FIFTH: Subparagraph 3.2.1 of the Agreement is hereby deleted in its entirety, and is replaced with the following new Subparagraph 3.2.1:

3.2.1 County Project Manager for this Agreement shall be the following person:

Mr. Pat Smith
County of Los Angeles Department of Public Works
900 South Fremont Avenue
Alhambra, CA 91803
Telephone: (626) 300-2032
Fax: (626) 979-5319
e-mail: psmith@dpw.lacounty.gov

SIXTH: Subparagraph 5.1 (General) of the Agreement is hereby deleted in its entirety, and is replaced with the following new Subparagraph 5.1(General):

5.1 General. Upon completion of particular Tasks, including all applicable subtasks, Deliverables, goods, services, and other Work to be provided by CONTRACTOR pursuant to this Agreement, including Exhibit B (Statement of Work); Exhibit L (Supplemental Statement of Work); and any executed Change Notice, CONTRACTOR shall submit a Task/Deliverable Acceptance Certificate in the form attached as Exhibit G (Task/Deliverable Acceptance Certificate) to County Project Director, together with any supporting documentation reasonably requested by COUNTY, for County Project Director's written approval. CONTRACTOR acknowledges that notwithstanding anything herein to the contrary it must complete all Work required to complete and deliver the WCS to COUNTY. All Work shall be completed in a timely manner and in accordance with the requirements and Specifications set forth in Exhibit B (Statement of Work) and Exhibit L (Supplemental Statement of Work), as applicable, and must have the written approval of County Project Director, as evidenced by County Project Director's countersignature to the applicable Task/Deliverable Acceptance Certificate. In no event shall COUNTY be liable or responsible for payment respecting a particular Task prior to execution of the Task/Deliverable Acceptance Certificate for such Task.

SEVENTH: Subparagraph 5.2.2 (Final Acceptance) of the Agreement is hereby deleted in its entirety, and is replaced with the following new Subparagraph 5.2.2 (Final Acceptance):

5.2.2. Final Acceptance. CONTRACTOR shall achieve Final Acceptance on the date specified in Exhibit C (Schedule of Deliverables and Payments) or, with respect to Phase II tasks and deliverables, the date specified in Exhibit L-4 (Phase II Schedule of Deliverables and Payments), pursuant to the execution of this Agreement, provided that such date may be extended in accordance with Paragraph 6 (Change Notices and Amendments). CONTRACTOR shall achieve Final Acceptance upon successful completion of all the following: (a) its completion and delivery of all Tasks, subtasks, Deliverables, goods, services and testing protocols associated with the Final Acceptance requirements set forth in Exhibit B (Statement of Work) or Exhibit L (Supplemental Statement of Work), as applicable; (b) successful implementation of all functions and features of all phases and successful achievement of all testing protocols has been verified by CONTRACTOR; (c) County Project Director has provided CONTRACTOR with written approval, as evidenced by County Project Director's countersignature on all applicable Task/Deliverable Acceptance Certificates, of all such Work; (d) all such Work has been provided, installed, and operates in COUNTY'S production environment with no Deficiencies as defined in Paragraph 11 (Deficiencies) for no less than 60 days following the completion of Task and Deliverable 16 of Exhibit B or, with respect to Phase II tasks and deliverables, acceptance of Task and Deliverable 21 of Exhibit L; and (e) County Project Director has provided CONTRACTOR with written approval, as evidenced by County Project Director's countersignature on the applicable Task/Deliverable Acceptance Certificate, of CONTRACTOR'S achievement of Final Acceptance (the date of satisfaction of the foregoing, including written approval thereof, shall be referred to as the Final Acceptance Date).

EIGHTH: Subparagraph 6.1.2 of Paragraph 6 (Change Notices and Amendments) of the Agreement is hereby deleted in its entirety, and is replaced with the following new Subparagraph 6.1.2:

6.1.2 Notwithstanding any provision hereof to the contrary, the Director shall have the authority to increase the Maximum Contract Sum by an amount not to exceed Five Hundred Thousand Dollars (\$500,000.00), in the Director's sole and absolute discretion, for the purpose of increasing the scope of work which was not foreseen under the original Statement of Work attached hereto as Exhibit A. To implement such an increase in the Maximum Contract Sum, a Change Order to the Agreement shall be prepared and executed by the Contractor and by the Director.

NINTH: Subparagraph 8.1 (General) of the Agreement is hereby deleted in its entirety, and is replaced with the following new Subparagraph 8.1(General):

- 8.1 General. Attached to this Agreement are Exhibit C (Schedule of Deliverables and Payments) and Exhibit L-4 (Phase II Schedule of Deliverables and Payments), schedules of all fees applicable to this Agreement, along with a payment schedule for completion of Work beginning on the Notice to Proceed and continuing through the Final Acceptance.”

TENTH: The final sentence of Subparagraph 8.2 (Maximum Contract Sum) of the Agreement is hereby deleted in its entirety and is replaced by the following new final sentence to read as follows:

The Maximum Contract Sum for this Agreement, including all applicable Taxes, authorized by COUNTY hereunder, shall not exceed Ten Million Four Hundred Eight Thousand Two Hundred Eighty Nine Dollars (\$10,408,289).

ELEVENTH: Subparagraph 10.2 (Submission of Invoices) of the Agreement is hereby deleted in its entirety, and is replaced with the following new Subparagraph 10.2 (Submission of Invoices):

- 10.2 Submission of Invoices. CONTRACTOR shall invoice COUNTY upon completion of Tasks, subtasks, Deliverables, goods and services, and other Work specified in this Agreement, Exhibit B (Statement of Work), Exhibit L (Supplemental Statement of Work), Exhibit C (Schedule of Deliverables and Payments), Exhibit L-4 (Phase II Schedule of Deliverables and Payments), and any Change Orders, as applicable, and which have been approved in writing by COUNTY pursuant to Paragraph 4.3 (Work; Approval and Acceptance). CONTRACTOR agrees not to submit any invoice for payment until COUNTY has approved in writing the Work for which payment is claimed. All invoices and supporting documents under this Agreement shall be submitted in duplicate to the following address:

Accounts Payable Section
County of Los Angeles Department of Public Works
Fiscal Division, 7th Floor
P.O. Box 1460
Alhambra, CA 91802-1460

TWELFTH: Subparagraph 10.3.1 of the Agreement is hereby deleted in its entirety, and is replaced with the following new Subparagraph 10.3.1:

- 10.3.1 The Tasks, subtasks, Deliverables, goods, services, or other Work as described in Exhibit B (Statement of Work), Exhibit L (Supplemental Statement of Work), Exhibit C (Schedule of Deliverables and Payments), Exhibit L-4 (Phase II Schedule of Deliverables and Payments), and any Change Order, as applicable, for which payment is claimed.

THIRTEENTH: Subparagraph 10.8 (Credits to COUNTY) of the Agreement is hereby deleted in its entirety, and is replaced with the following new Subparagraph 10.8 (Credits to COUNTY):

10.8 Credits to COUNTY

10.8.1 In an increasingly mobile society, it is critical to improve traffic flow through multiple jurisdictions within COUNTY in an effort to enhance mobility, relieve traffic congestion, and increase air quality. To meet these goals, COUNTY is implementing a Countywide information exchange network that will provide continuous monitoring of traffic conditions and traffic signal operations as well as enable traffic signal timing to be controlled and coordinated remotely to adjust to actual traffic conditions. It will also allow for the exchange of traffic data and information among different agencies within COUNTY. For the information exchange network to function effectively, each agency must use a traffic control system that communicates with the information exchange network to allow the exchange of traffic data and information between agencies. The WCS will communicate the traffic data and information from the traffic signals and CCTV cameras located in the unincorporated areas of COUNTY, as well as certain agencies within COUNTY, with COUNTY'S traffic control system. Any delay in the completion and delivery of the WCS decreases the efficiency and value of both COUNTY'S traffic control system and the information exchange network. COUNTY and CONTRACTOR have identified the key Deliverables set forth in Subparagraph 10.8.2 below; CONTRACTOR'S timely completion and delivery of which will ensure COUNTY receives and is able to implement the WCS in a timely fashion, and, therefore, improve mobility, relieve traffic congestion and enhance air quality in COUNTY. If CONTRACTOR fails to complete and deliver such Deliverables by the dates set forth in Exhibit C (Schedule of Deliverables and Payments), or Exhibit L-4 (Phase II Schedule of Deliverables and Payments), as applicable, it is mutually agreed that such delay increases the likelihood that CONTRACTOR will not complete and deliver the WCS in a timely manner, and, therefore, decreases COUNTY'S ability to use the WCS to achieve its goals.

10.8.2 COUNTY shall be entitled to credits arising from CONTRACTOR's noncompliance with its obligations relating to any of the following Deliverables:

10.8.2.1 Deliverables specified in Exhibit C. (Schedule of Deliverables and Payments):

Deliverable 5: Proof-of-Concept Demonstrations;

Deliverable 6: Deployment and Acceptance of the WCS for 16 Intersections;

Deliverable 11: Acceptance of the WCS for all 51 intersections and four CCTV cameras.

10.8.2.2 Deliverables specified in Exhibit L-4 (Phase II Schedule of Deliverables and Payments). COUNTY shall also be entitled to credits arising from CONTRACTOR'S noncompliance with its obligations relating to any of the following Deliverables specified in Exhibit L-4 (Phase II Schedule of Deliverables and Payments):

Deliverable 18: Radio Installation Per Intersection

Deliverable 18a: Hardware

Deliverable 18b: Cable Installation

Deliverable 19: Integration, Start-up and Testing - Per Intersection

Deliverable 19a: Hardware

Deliverable 19b: Cable Installation

Deliverable 21: As-Built Record Documentation per Group - Final Acceptance

10.8.3 Such credits will be calculated according to the following rules:

- (i) Deliverables not properly completed within 30 working days of the Deliverable due date, as specified in Exhibit C (Schedule of Deliverables and Payments), or Exhibit L-4 (Phase II Schedule of Deliverables and Payments), as applicable, shall entitle COUNTY to a credit of 5 percent of the actual cost of such Deliverable, as set forth in Exhibit C or Exhibit L-4, as applicable.

- (ii) The credit shall be increased by 1 percent of such cost each working day the Deliverable is late beyond the 30 working days.

10.8.4 Deliverables shall not be considered late if their delay is due to circumstances above and beyond the control of CONTRACTOR, including, but not limited to, (i) the failure of COUNTY or other impacted jurisdictions to provide comments within the time frames set forth in Exhibit C (Schedule of Deliverables and Payments), or Exhibit L-4 (Phase II Schedule of Deliverables and Payments), as applicable, and (ii) the failure of an approved subcontractor to complete work in accordance with the time frames set forth in the statement of work attached to such subcontract, provided CONTRACTOR has filed a timely Notice of Delay pursuant to Paragraph 15 (Notice of Delay) of Exhibit A (Additional Terms and Conditions) in respect of such circumstance. COUNTY may apply the full amount of any credit hereunder to offset and reduce any payments owing hereunder by COUNTY, at any time, by the full amount of such credit.

FOURTEENTH: Subparagraph 12.1.1 is hereby deleted in its entirety, and is replaced with the following new Subparagraph 12.1.1:

12.1.1The WCS shall perform fully in accordance with the Specifications set forth in Exhibit B (Statement of Work) and Exhibit L (Supplemental Statement of Work) and any amendments thereto;

FIFTEENTH: Paragraph 14 (Minimum System Requirements) is hereby deleted in its entirety, and is replaced with the following new Paragraph 14 (Minimum System Requirements):

14. MINIMUM SYSTEM REQUIREMENTS

Exhibit B (Statement of Work) and Exhibit L (Supplemental Statement of Work) set forth the minimum requirements for the WCS required for COUNTY to enjoy and exercise fully its rights in respect of the WCS. Such minimum requirements shall provide Specifications for installation of the WCS, including a seamless integration with KITS and other agency's Traffic Management System's as applicable.

SIXTEENTH: For purposes of Paragraph 18 (Notices) of the Agreement, CONTRACTOR'S contact information is hereby deleted and replaced with the following:

To CONTRACTOR:

Systems Analysis & Integration, Inc.
d.b.a. Systems Integrated
2200 North Glassell Street
Orange, CA 92865
Attention Susan Corrales-Diaz
Telephone: (714) 998-0900
Fax: (714) 998-6059

SEVENTEENTH: Paragraph 12.3 of Exhibit A (Additional Terms and Conditions) of the Agreement is hereby deleted in its entirety, and is replaced with the following new Paragraph 12.3:

12.3 CONTRACTOR shall in the performance of all Work strictly comply with the descriptions and representations (including Deliverable Documentation, performance capabilities, accuracy, completeness, characteristics, specifications, configurations, standards, functions and requirements) as set forth in Exhibit B (Statement of Work) and Exhibit L (Supplemental Statement of Work), as applicable.

EIGHTEENTH: Paragraph 12.6 of Exhibit A (Additional Terms and Conditions) of the Agreement is hereby deleted in its entirety, and is replaced with the following new Paragraph 12.6:

12.6 The System Software shall be fully compatible with and shall fully integrate, perform, and function with the system hardware and the operating system software that conform to the specifications set forth in Exhibit B (Statement of Work) and Exhibit L (Supplemental Statement of Work), as applicable.

NINETEENTH: Paragraph 12.7 of Exhibit A (Additional Terms and Conditions) of the Agreement is hereby deleted in its entirety, and is replaced with the following new Paragraph 12.7:

12.7 CONTRACTOR shall not cause any unplanned interruption of the operations of, or accessibility to WCS or any component thereof through any device, method or means including the use of any "virus," "lockup," "time bomb," or "key lock," "worm," device or program, or disabling code, (collectively referred to as a "Disabling Device"), which has the potential or capability of compromising the security of COUNTY'S confidential or proprietary information or of causing any unplanned interruption of the accessibility of WCS or any WCS component by COUNTY or any user or which could alter, destroy, or

inhibit the use of WCS, any component thereof, or the data contained therein. CONTRACTOR represents warrants and agrees that it has not purposely placed, nor is it aware of, any Disabling Device on any WCS component provided to COUNTY under the Agreement, nor shall CONTRACTOR knowingly permit any subsequently delivered WCS component to contain any Disabling Device.

TWENTIETH: For purposes of Paragraph 13.2 (Insurance) of Exhibit A (Additional Terms and Conditions) of the Agreement, COUNTY'S contact information is hereby deleted and replaced with the following:

Mr. Anthony Ford
County of Los Angeles
Department of Public Works
Administrative Services Division
900 South Fremont Avenue
Alhambra, CA 91803-1331

TWENTY-FIRST: Subparagraph 32.2.4 of Exhibit A (Additional Terms and Conditions) of the Agreement is hereby deleted in its entirety, and is replaced with the following new Subparagraph 32.2.4:

32.2.4 CONTRACTOR'S violation of this Paragraph 32 (Compliance with Jury Service Program) of this Exhibit may constitute a material breach of the Agreement. In the event of such material breach, COUNTY may, in its sole discretion, terminate the Agreement and/or bar CONTRACTOR from the award of future COUNTY contracts for a period of time consistent with the seriousness of the breach.

TWENTY-SECOND: Paragraph 38 (Assignment by Contractor) of Exhibit A (Additional Terms and Conditions) of the Agreement is hereby deleted in its entirety, and is replaced with the following new Paragraph 38 (Assignment by Contractor):

38. **ASSIGNMENT BY CONTRACTOR**

38.1 CONTRACTOR shall not assign its rights or delegate its duties under the Agreement, or both, whether in whole or in part, without the prior written consent of COUNTY, in its discretion, and any attempted assignment or delegation without such consent shall be null and void. For purposes of this paragraph, COUNTY consent shall require a written amendment to the Agreement, which is formally approved and executed by the Director and CONTRACTOR. Any payments by COUNTY to any approved delegate or assignee on any claim under the Agreement shall be deductible, at COUNTY'S sole discretion, against the claims, which CONTRACTOR may have against COUNTY.

- 38.2. Shareholders, partners, members, or other equity holders of CONTRACTOR may transfer, sell, exchange, assign, or divest themselves of any interest they may have therein. However, in the event any such sale, transfer, exchange, assignment, or divestment is effected in such a way as to give majority control of CONTRACTOR to any person(s), corporation, partnership, or legal entity other than the majority controlling interest therein at the time of execution of this Contract, such disposition is an assignment requiring the prior written consent of COUNTY in accordance with applicable provisions of this Contract.
- 38.3. Any assumption, assignment, delegation, or takeover of any of CONTRACTOR'S duties, responsibilities, obligations, or performance of same by any entity other than CONTRACTOR, whether through assignment, subcontract, delegation, merger, buyout, or any other mechanism, with or without consideration for any reason whatsoever without COUNTY'S express prior written approval, shall be a material breach of this Contract, which may result in the termination of this Contract. In the event of such termination, COUNTY shall be entitled to pursue the same remedies against CONTRACTOR as it could pursue in the event of default of CONTRACTOR.

TWENTY-THIRD: New Exhibits L (Supplemental Statement of Work), Exhibit L-1 (Phase II Intersections), Exhibit L-2 (Phase II CCTV Camera Locations), Exhibit L-3 (Proposed and Existing Hard-Wired Locations), and Exhibit L-4 (Phase II Schedule of Deliverables and Payments), true and correct copies of which are attached hereto and incorporated herein by this reference, are hereby attached to, incorporated into and shall become part of the Agreement as if originally set forth therein and attached thereto.

TWENTY-FOURTH: This AMENDMENT will become effective upon Board approval and full execution.

TWENTY-FIFTH: Except as modified under this AMENDMENT, the Agreement and the respective rights and obligations of the parties thereunder shall remain as previously written and in full force and effect.

IN WITNESS WHEREOF, the COUNTY has, by order of its Board of Supervisors, caused these presents to be subscribed by the Director of Public Works, and the CONTRACTOR has subscribed its name by and through its duly authorized officers, as of the day, month, and year first written above.

COUNTY OF LOS ANGELES

By _____
Director of Public Works

APPROVED AS TO FORM:

RAYMOND G. FORTNER, JR.
County Counsel

By _____
Deputy

SYSTEMS ANALYSIS & INTEGRATION,
INC., d.b.a. SYSTEMS INTEGRATED

By _____
Its President

Type or Print Name

By _____
Its Secretary

Type or Print Name

EXHIBIT L

SUPPLEMENTAL STATEMENT OF WORK FOR PHASE II OF THE WIRELESS COMMUNICATIONS SYSTEM (WCS) FOR THE TRAFFIC MANAGEMENT SYSTEM

The contents of this Exhibit L, Supplemental Statement of Work for Phase II of the Wireless Communications System (WCS) for the Traffic Management System, are organized into the following sections:

- A. WCS Requirements Overview for Phase II
- B. Network Design of Phase II
- C. Radio Installation
- D. Equipment Functional Requirements
- E. Minimum Technical and Installation Requirements
- F. Additional Requirements
- G. Acceptance Testing for Phase II

A. WCS Requirements Overview for Phase II

1. The WCS requirements set forth in Exhibit B, the Statement of Work, are applicable to the WCS specified in this Supplemental Statement of Work for Phase II unless different requirements are set forth in this Section A.
2. Conceptual WCS Network Layout: The WCS layout is based upon the availability of wireless broadband technology (Broadband) that can be used to provide low latency data communications between traffic signal controllers and Traffic Management Centers (TMCs) as well as providing high bandwidth communications between Closed-Circuit Television (CCTV) cameras located in the field and the TMCs. Intersections are grouped together using multiple Point-to-Multipoint Broadband radios. Data from the Broadband is then transported to a variety of TMCs using a variety of communications methods. These communications methods consist of:
 - (a) Existing twisted wire pair, or fiber optic communications,
 - (b) Fiber optic communications to be constructed via a Public Works construction contract,
 - (c) Existing and future (to be ordered by Public Works) leased telephone lines, or
 - (d) To be installed via the alternate communication network discussed below.

3. The portion of the required WCS that will provide Broadband service to the intersection controllers and CCTV is the scope of this Phase II Statement of Work, hereinafter referred to as Phase II intersections. The Equipment Functional Requirements and Minimum Technical Requirements required of the WCS Broadband system are included in Section E of this Exhibit L. This scope of work will expand the installation of the Broadband system design currently implemented, which transports both serial LACO-4 data, and camera video data via standard TCP/IP packets using Proxim base stations and Proxim subscriber radios. For this Amendment, the Contractor has the option to supply an alternate communication network solution(s), which will provide the functionality of transporting both intersection controller data and CCTV data (such as reuse of existing cable) provided that the proposed implementation meets the County's Equipment Functional Requirements and Minimum Technical and Installation Requirements (Sections D and E of this Exhibit L).

B. Network Design of Phase II

4. The network design requirements set forth in Exhibit B, the Statement of Work, are applicable to the network design defined in this Supplemental Statement of Work for Phase II unless different requirements are set forth in this Section B.
5. This expansion of the WCS consists of a number of geographically isolated groups of intersections (hereinafter referred to as "Group") that report to a variety of Traffic Management Centers (TMC). These groups will include a minimum of eight signals. The Phase II intersections and CCTV cameras that require a WCS interface are listed in Exhibit L-1 and Exhibit L-2, respectively. These lists also specify the central location addresses to which these intersections and CCTV cameras must ultimately terminate, as well as City Hall or City Yard sites where radios and leased telephone lines may be installed (The County reserves the right to replace the controller site locations in Exhibit L-1 with other site locations so long as the total number of intersections remains the same).
6. Each Group will be associated with one of three categories of locations: 1) Intersections maintained by County, 2) Intersections owned and maintained by other agencies (defined as Level 1 and Level 2A agencies) who have requested the County to operate and monitor their traffic signals, and 3) Intersections owned and maintained by other agencies (defined as Level 2B and 3 agencies). County maintained traffic signals and Levels 1 and 2A traffic signals will be ultimately terminated in the County's Traffic Management Center at 900 South Fremont Avenue in Alhambra. Level 2B and 3 intersections will be terminated at the designated agency TMC. Intersections that are owned by the County can be grouped with another agency's intersections as long as the County

maintains these sites. These intersections shall then be terminated in a County facility or a public agency facility whose intersections are maintained by the County. Subsequently, the Contractor will be able to phase the work according to these Groups. For each Group the Contractor shall perform the deliverables itemized in this Supplemental Statement of Work for Phase II.

Deliverable 17: Group Network Layout – Draft
Group Network Layout - Final

- a. The Contractor must provide a submittal for approval by the County that will include:
 - (1) A listing of the intersections to be included in the Group;
 - (2) A proposed communications infrastructure design using the Broadband equipment specified in Section D of this Exhibit L that supports the objectives of the WCS;
 - (3) If applicable, an analysis of the cost impact of providing Bus Signal Priority (BSP) Radios at specified locations. It is the County's understanding that Metro is installing radios along BSP routes and the Contractor may propose a solution whereby the same radio(s) can support both the BSP program and WCS requirements. Any such proposal for combining equipment must meet the specifications as described in the Equipment Functional Requirements and Minimum Technical and Installation Requirements (Sections D and E of this Exhibit L);
 - (4) A Network design for the Group: This network design will identify the topology, the type of hardware to be used to interconnect the intersections as well as the use of any alternative communications approaches to be installed at any intersection to support other objectives (such as reuse of existing cable or fiber optic communication assets) and any alternative backhaul communications systems that would minimize the overall capital and monthly operating cost while still providing the overall functionality required. The Contractor shall utilize any existing/proposed communication infrastructure where feasible as part of the WCS design. The proposed County fiber optics communications system deployment along particular routes is summarized in Exhibit L-3. This exhibit also summarizes the connection of these proposed fiber optic communications to similar systems from other agencies, as well as existing hardware communications along arterial routes. In some instances, leased

telephone service has already been installed at certain termination points;

- (5) A listing of IP assignments for the radios and controllers in the Group;
- (6) An estimated number of base and subscriber radios required. It is anticipated that most controller locations will require one subscriber radio. However, there will be some instances where a location will utilize multiple subscriber radios to capture signal from different approaches, and perhaps even utilizing a repeater radio unit. In addition, it is understood that there will also be locations where, in order to provide a fully functional communications network, radios will be installed at signalized intersections not proposed to be connected to the WCS. These intersections shall be referred to as "communication intersections";
- (7) An estimated number and location of leased telephone lines required. The Contractor shall attempt to use only leased telephone line locations that are on County owned facilities. If no such facilities are available, then other public agency facilities can be considered
- (8) A Deployment Schedule for the group including a proposed implementation schedule and estimated cost for the group. The unit costs for these items shall be as quoted in Exhibit L-4; itemized and totaled as follows:
 - i. Cost per radio for proposed equipment including required hardware kitting
 - ii. Cost per intersection for integration, start up and testing
 - iii. Cost per intersection for radio installation, including both intersections as indicated in Exhibit L-1 as well as communication intersections
 - iv. Cost per additional radio for installation
 - v. Cost for backhaul equipment (if proposed)
 - vi. Estimated cost totals for:
 - Hardware
 - Installation
 - Integration, start up and testing

- b. Upon receipt of the Contractor provided submittal, the County will review and determine if the proposed design meets the overall TMC requirements. As part of the County's acceptance criteria for of the design, the following elements must be provided:
- (1) Leased telephone lines and master radios are sited at one or more of the existing, available public buildings in each agency or subregion;
 - (2) The intersections shall be combined into backhaul groups to transmission to the applicable leased telephone line location(s). For those subregions where there are more than eight intersections, each backhaul group will have no fewer than eight intersections;
 - (3) Phase II intersections will be connected to their respective traffic control system (TCS). The Contractor shall determine the appropriate rates of data speeds (i.e. 9600, 19,200, or higher bauds) with the TCS vendors associated with these intersections. The targeted intersections have or will have two types of traffic signal controllers. The first type will be Type 170E or 170 Advanced Transportation Controllers (ATC) in 332 controller cabinets utilizing the County's LACO-4E controller firmware. These traffic signals will communicate using the Type 170 controller's RS-232 serial data communications port at a minimum data speed of 9600 baud. The second type will include Econolite's ASC2S or ASC3 traffic signal controllers in Type P cabinets. All of the WCS's required radio units are intended to be powered from, and installed into available space within, the existing controller cabinets.
 - (4) If BSP radios are proposed, the County will determine if the WCS Contactor would install and make operational the dual process radios at existing BSP locations.

C. Radio Installation

Deliverable 18: Radio Installation – Per Intersection

1. Upon acceptance of Deliverable 17 for each Group by the County, a notice to proceed for the radio installation will be provided to the Contractor. The County shall direct the Contractor to provide the hardware, kitting, configuration, start up and optional installation authorization. The contractor shall proceed with the work providing a monthly status report and associated billing based upon the hardware provided, installed, tested and accepted.

2. Each monthly billing shall identify:
 - (1) the number of radios and associated kits that were provided;
 - (2) number of intersections configured; and
 - (3) number of intersections tested.

D. Equipment Functional Requirements for Phase II

1. The Equipment Functional Requirements as defined in Section E of Exhibit B, the Statement of Work, are applicable to this Supplemental Statement of Work unless a different standard is noted below in this Section D.
2. Radio Units: WCS is based on a broadband spread spectrum radio system operating in the unlicensed 5.2 to 5.8 GHz and 2.4 GHz frequency bands. The radios shall operate in a point-to-multipoint configuration in a connection setup whereby one master radio communicates with a number of remote/repeater radios.
3. Each master radio shall communicate with no fewer than four signalized intersections with a response time of no less than 250 milliseconds (ms). The radios shall connect to the controllers' serial ports using a serial to Ethernet converter.
4. Types of Controllers. There are two types of controllers that the WCS shall interface with. One uses an RS232, slow speed (less than 250Kbps), serial communications interface and the second uses an Ethernet controller. There are two options for communications described as follows:

Option 1: Serial Communications

Under this option, the controllers and TCS communications server will both use RS 232 communications. If the WCS utilizes a native communications protocol other than RS 232 serial (such as IP protocol), then the data communications must be converted to RS 232 by the WCS or by equipment that the Contractor supplies with the WCS. Integration of such converter equipment is the responsibility of the Contractor.

Option 2: Internet Protocol (IP) Communications

Under this option, the TCS communications server communicates with field devices using IP communications at various rates depending on the particular TCS associated with the Phase II controllers. The Contractor is required to communicate at various rates to meet the capabilities of such TCS to support continuous second-by-second communications when

using a very robust link having relatively little latency (such as interconnect cables of twisted-pair copper wire or fiber optic).

The WCS shall have low enough total latency that a minimum of four intersections can be accommodated on one communications channel for this once-per-second polling mode. Each master radio thus represents one communications channel.

E. Minimum Technical and Installation Requirements

1. The minimum technical requirements set forth in Exhibit B, Section F, Statement of Work, are applicable to the work specified in this Supplemental Statement of Work for Phase II unless a different standard is specified in this Section E.
2. The Minimum Technical Requirements defined in Exhibit B, Section F, Items 1-15, are inapplicable to Phase II. The equipment furnished by the Contractor must meet or exceed standards and regulations of the Institute of Electrical and Electronic Engineers, Inc. (IEEE), National Institute of Standards and Technology (NIST), Department of Transportation (DOT7), as well as any federal, state, county, and city regulations that are applicable or specified in this Contract.
3. The following are minimum technical requirements for Phase II:
 - (1) A 2.4 or 5.8 GHz WCS shall operate in the license-free ISM or U-NII Band, utilizing FHSS or Orthogonal Frequency Division Multiplexing (OFDM) technology.
 - (2) WCS radios shall:
 - Operate using Power over Ethernet
 - Be Outdoor mountable
 - Have user selectable transmit power
 - Support dynamic center frequency and output power adjustments
 - Provide maximum output power 20 dBm (100 MW)
 - Operate with a signal to noise ratio of 15dBm or more
 - Support speeds (over the air) selectable from 2 Mbps to 32Mbps (1/2 duplex)
 - Support Level III Ethernet protocol (routable)
 - Support both bridge and routed networks
 - Support VLAN connections
 - Support Prioritization (QOS)
 - Provide 256 bit encryption
 - Support both Ethernet encryption and over the air encryption

- Support both system name and password radio-to-radio authentication
 - Support both 5.2 Ghz and 5.8 Ghz bands
 - Support dynamic frequency sizing and channels
 - Provide graphic web interface for configuration and diagnostics
 - Support extended temperature range (built in heater/air conditioner)
 - Provide a Single connector, RJ45, watertight interface Ethernet interface
 - Provide a watertight RS232 jack that can be used for aiming the radio
 - Be provided with N type female connector
 - Have a minimum of MTBF 300,000 hours
- (3) Identical makes and models of the proposed WCS wireless equipment should have been successfully deployed and in continuous operation for more than 12 months, in at least three traffic signal systems, each having at least 12 signalized intersections. Acceptability of the proposed WCS shall be at the sole discretion of the County.
4. The Minimum Technical Requirements defined in Exhibit B, Section F, Item 17d, are inapplicable to Phase II. The following minimum technical requirements apply to equipment furnished by the Contractor for Phase II:
- (1) Two different antenna types, directional and omnidirectional, shall be provided by the Contractor.
- (2) Omnidirectional Antennas meeting the following minimum requirements shall be used as point-to-multipoint base station transceivers:
- Gain: 8 dB
 - Length: 11"
 - Weight: 1 lb.
 - Termination: Recessed Type "N" Female Connector
 - Impedance: 50 ohms
 - VSWR: 1.5:1
 - Max. Power: 1 watt
 - Frequency: 5.2 – 5.8 Ghz
 - Wind Survival: 125 MPH
 - Polarization: Vertical

- (3) Directional Panel Antennas meeting the following minimum requirements shall be used as directional point-to-point remote transceivers:

- Frequency Range: 5.2-5.8 Ghz
- Nominal Gain: 23 dBM
- Horizontal Beam width
(At half power points): 5 deg
- Vertical Beam width
(At half power points): 45 deg
- Power Rating: 1 Watt
- Termination: N Female
- Height: 12" (612 mm)
- Lateral thrust @ 100 mph Wind Velocity: 38 lbs.
- Projected Area (Flat plane equivalent): 1 ftsq.
- **Allows for Vertical or Horizontal polarization**

F. Additional Requirements

1. Contractor shall indicate a unit cost per intersection for cable installation in Exhibit L-4: Schedule of Deliverables and Payments under Task 18b: Cable Installation.
2. Construction Permits: If Contractors' work within public rights of way requires construction permits to be issued by the local governing entity, the Contractor will be responsible for obtaining such permits. Such permits may require submittal of an appropriate work zone traffic control plan, which the Contractor shall submit. The cost of such permits shall be covered by the County.
3. Minimum Requirements for Communications That Serve the CCTV Cameras:
 - a. Requirements contained in this section are based on the necessary functions to be supplied by the WCS equipment. Proposed equipment having variances with the detailed specifications listed herein must provide equivalent functionality. The determination of equivalency of such nonconforming equipment rests solely with County.
 - b. The CCTV camera systems will be deployed by the County under a separate contract, and will include all necessary software and interface equipment to control and monitor the camera function, and all digitizer CODECs. The data transmission for these cameras will be the MPEG-4 compressed streaming video ISO/IEC standard 14496.

- c. The WCS shall achieve the required connectivity and throughput. Radio units shall utilize only unlicensed frequencies.
- d. Radio equipment for this portion of the WCS shall have the following **minimum characteristics**:
 - (1) Fixed, point-to-point communications or point-to-multipoint communications
 - (2) Effective data throughput rate of not less than 512Kbps
 - (3) Operating range of 6+ miles with clear line-of-sight (panel to panel antenna)
 - (4) Operating temperature of at least -10C to +80C
 - (5) Antenna is the brand/model recommended by the radio manufacturer or equivalent
 - (6) Any array antenna required to be no larger than 16 inches in diameter
 - (7) Any omnidirectional or panel antenna to have a mast no longer than 24 inches
 - (8) Nominal antenna mounting at/near top of existing traffic signal pole requiring no new antenna towers to achieve adequate results
- e. CCTV Camera Communications Protocol: Camera systems supplied by the County will be capable of IP-based communications to the pan-tilt-zoom (PTZ) controller using a variety of protocols including CoHu, AXIS, Javelin, Kalatel, Pelco, Philips/Bosch, Ultrak, Vicon, and NTCIP. The Contractor shall utilize one of these protocols as directed by the County Project Manager in designing and implementing the WCS to serve CCTVs.
- f. TMC Facility Connection: The remote monitoring and control of these CCTV cameras shall be at the County's or agency's TMC facility, using manufacturer's interface software. Throughput of this part of the WCS shall be sufficient to allow for full-motion video (equivalent to at least 25 frames per second) to be received from all four CCTV cameras simultaneously, while also sending PTZ commands to the CCTV cameras.

G. Acceptance Testing for Phase II

Deliverable 19a: Integration, Start-up and Testing – Per Intersection – Hardware

Deliverable: 19b: Integration, Start-up and Testing – Per Intersection – Cable

Deliverable: 19c: Diagnostic Software Workstations for Cities

Acceptance testing shall be done by Group, with the payment for Deliverable 19 based upon the following:

- (1) Following completion of the field work, the Contractor shall conduct systems acceptance testing per Exhibit B, Deliverable 7, Final Acceptance Test Plan. County staff and/or its designated consultant shall be in attendance for all systems acceptance testing. Contractor shall complete acceptance testing for each intersection location prior to invoicing at the end of each monthly payment period, as well as acceptance testing of the WCS for all CCTV cameras associated with the same invoice. A location will be deemed acceptable with a continuous quality of 98 percent or better for a consecutive seven-day period as reported by the communication statistics generated by the Contractor's ONSITE communications diagnostic software **and** by the traffic control system communications report associated with the respective location.
- (2) As specified in Paragraph K, Item 2, for every central WCS location defined in Exhibit L-1, Contractor will install a workstation and the ONSITE communications diagnostic software to monitor the operational health of the WCS and pinpoint any communication failures that occur, which partially or wholly disrupt the effective throughput of the communication system. The installation of this software is included in at no additional cost as a component of Deliverable 19 Integration, Start-up and Testing – Per Intersection and shall include any license fees. Each city will have the option of procuring their own workstation, the minimum hardware and technical requirements for these workstations are as follows:
 - Rack mounted server
 - Processor with minimum 4MB Cache, 1.6 GHz (1,066MHz bus)
 - Hard Drive with minimum RAM, 80GB HD (SATA 7200RPM)
 - Memory with minimum 4 GB 677MHz Ranked DIMMs
 - Operating system with Windows 2003 server

Deliverable 20: Training for County Staff on Operation of Diagnostic Software

Upon completion of the acceptance testing for Phase II, the Contractor shall train County staff on the operation and most effective use of this diagnostic system so as to allow for ready identification of WCS problems that need to be corrected.

Deliverable 21: As-Built Record Documentation – Per Group – Final Acceptance

During deployment of the WCS for Phase II, the Contractor shall gather "as-built" information about the various components and elements of the WCS, and shall supply the aggregate information to the County after completion of Acceptance Testing as defined in Deliverable 19: Integration, Start-up and Testing. Such documentation shall include, but not be limited to, the following:

- Final IP and network configuration
- Radio linking map
- Frequency configuration for each radio
- For each Group of the Phase II intersections and CCTV camera locations (individually): Equipment brand, model, and serial numbers for each electronically-active element, listing of installed nonelectronically-active peripheral equipment (e.g., cabling, housings, mounts, racks, antennas, etc.), and IP addresses for all field elements
- One package of three sets of catalog cut sheets and detailed technical specifications for each such active model supplied anywhere in the project, along with the manufacturer's maintenance, troubleshooting and/or repair manuals (when available) for all supplied components. Acceptance of the Record Documentation will constitute Final Acceptance for each Group

Deliverable 22 : Spare Parts

Contractor shall provide spare parts to be retained by the County, for County's own initial troubleshooting and minor repair of WCS equipment and component parts after the warranty period. Contractor shall supply a minimum of one spare unit for each model of all equipment installed (radios, antennas, communications routers, switch ports, etc.). If the Contractor is installing more than 20 of any one equipment model, then 2 percent of that model's quantity (rounded up) shall be provided as spares. Such spares shall be considered an integral part of the initial

WCS lump-sum deployment and shall become the County's property when provided; no additional payment will be made.

Deliverable 23: Contractors' and Extended Manufacturers' Warranties – Per Group

1. Upon completion of Deliverable 21: As-Built Record Documentation – Per Group/Final Acceptance, the Contractor shall provide complete end-to-end warranty coverage for all equipment installed for the Group such that the intended communications linkages are provided. This is applicable to all equipment installed except for BSP Radios of which will be covered by warranties maintained by Metro. The warranty shall be for a minimum of two years following Final Acceptance for each Group, and shall cover all costs for both Contractor labor and parts/equipment/materials. Extended manufacturers' equipment warranties shall be provided for all project components that are covered by any original manufacturer's warranty that is longer than two years.
2. Contractor shall respond to a call for warranty maintenance service within three business days with remediation in the form of telephone support and diagnosis, replacement parts shipment, and/or remote intervention. If the Contractor's initial warranty response does not restore proper operation, an on-site service call is required and it shall be scheduled to occur within seven calendar days of receiving the initial call for warranty maintenance service.

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SOUTH BAY TRAFFIC FORUM PHASE II INTERSECTIONS

COUNTY OF LOS ANGELES		
Central System Location: 900 S. Fremont Avenue, Alhambra, CA 91803		
Number	Arterial Street Name	Cross Street Name
1	Century Bl	Budlong Av
2	Aviation Bl	TRW Entrance
3	Aviation Bl	Marine Av
4	Aviation Bl	Space Park Dr
5	Aviation Bl	Manhattan Beach Bl
6	Aviation Bl	2nd St
7	Aviation Bl	Artesia Bl
8	Sepulveda Bl	Normandie Av
9	Sepulveda Bl	Vermont Av
10	Artesia Bl	Prospect Av
11	Artesia Bl	Harper Av
12	Artesia Bl	Ford Av
13	Artesia Bl	Aviation Wy
14	Artesia Bl	Green Ln
15	Artesia Bl	Rindge Ln
16	Artesia Bl	Mackay Ln
17	Artesia Bl	Felton Av
18	Artesia Bl	Inglewood Av
19	Artesia Bl	Kingsdale Av
20	Imperial Hwy	Sundale Av
21	Imperial Hwy	Inglewood Av
22	Imperial Hwy	Ramona Av
23	Imperial Hwy	Freeman Av
24	Crenshaw Bl	Entrance 16
25	Crenshaw Bl	Northrop Av
26	Crenshaw Bl	El Segundo Bl
27	Crenshaw Bl	135th St
28	Crenshaw Bl	Rosecrans Av
29	Crenshaw Bl	147th St
30	Crenshaw Bl	Marine Av
31	Crenshaw Bl	154th St
32	Crenshaw Bl	Manhattan Beach Bl
33	Crenshaw Bl	El Camino College
34	Crenshaw Bl	Redondo Beach Bl
35	El Segundo	Continental Bl
36	El Segundo	Nash St

37	El Segundo	Douglas St
38	El Segundo	Ramona Av
39	El Segundo	Birch Av
40	El Segundo	Washington Av
41	El Segundo	Prairie Av
42	El Segundo	Doty Av
43	El Segundo	Kornblun Av
44	El Segundo	Yukon Av
45	El Segundo	Chadron Av
46	El Segundo	Wilkie Av
47	El Segundo	Van Ness Av
48	Inglewood Av	104th St
49	Inglewood Av	Lennox Bl
50	Inglewood Av	111th St
51	Inglewood Av	118th St
52	Inglewood Av	120th St
53	Inglewood Av	Broadway
54	Inglewood Av	147th St
55	Inglewood Av	West 147th St
56	Inglewood Av	Marine Av
57	Inglewood Av	152nd St
58	Inglewood Av	Manhattan Beach Bl
59	Inglewood Av	166th St
60	Rosecrans Av	Hindry Av
61	Rosecrans Av	Firmona Av
62	Rosecrans Av	Jefferson Av
63	Rosecrans Av	Prairie Av
64	Rosecrans Av	Doty Av
65	Rosecrans Av	Yukon Av
66	Rosecrans Av	Cerise Av
67	Rosecrans Av	Lemoli Av
68	Normandie Av	228th St
69	Normandie Av	Oakheath Dr
70	Normandie Av	245th St
71	Prairie Av	118th St
72	Prairie Av	120th St
73	Prairie Av	Northrop Av
74	Prairie Av	132nd St
75	Prairie Av	135th St
76	Prairie Av	139th St
77	Prairie Av	147th St
78	Prairie Av	Marine Av
79	Prairie Av	154th St

80	Prairie Av	Manhattan Beach Bl
81	Prairie Av	164th St
82	Prairie Av	Redondo Beach Bl
83	Vermont Av	Knox St
84	Vermont Av	Del Amo Bl
85	Vermont Av	Torrance Bl
86	Vermont Av	Javelin St
87	Vermont Av	Carson St
88	Vermont Av	220th St
89	Vermont Av	223rd St
90	Vermont Av	228th St
91	Carson St	Harbor Gen Hosp
92	Carson St	I-110 Fwy SB Ramp
93	Manhattan Beach Bl	Target Entrance
94	Manhattan Beach Bl	Meadows Av
95	Manhattan Beach Bl	Rowell Av
96	Manhattan Beach Bl	Peck Av
97	Manhattan Beach Bl	Redondo Av
98	Manhattan Beach Bl	Firmona Av
99	Manhattan Beach Bl	Freeman Av
100	Manhattan Beach Bl	Doty Av
101	Manhattan Beach Bl	Lemoli Av
102	Torrance Bl	Catalina St
103	Torrance Bl	Hamilton Av
104	Del Amo Bl	Wilmington Av
105	Del Amo Bl	Fordyce Av
106	Del Amo Bl	Santa Fe Av
107	Del Amo Bl	Susana Rd
108	Redondo Beach	Freeman Av
109	Redondo Beach	Ainsworth Av
110	Redondo Beach	Yukon Av
111	Marine Av	Cedar Av
112	Marine Av	Meadows Av
113	Marine Av	Peck Av
114	Marine Av	Redondo Av
115	Marine Av	Doolittle Dr
116	Marine Av	Redondo Beach Av
117	Marine Av	Firmona Av
118	Marine Av	Osage Av
119	Marine Av	Yukon Av
120	Marine Av	Lemoli Av
121	223rd St	Meyler St

CITY OF CARSON		
City Hall: 701 E. Carson Street, Carson, CA 90745		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Sepulveda Bl	Figueroa St
2	Sepulveda Bl	Main St
3	Sepulveda Bl	Dolores St
4	Sepulveda Bl	Panama Av
5	Sepulveda Bl	Avalon Bl
6	Sepulveda Bl	Banning Bl
7	Sepulveda Bl	Wilmington Av
8	Sepulveda Bl	H Av
9	Sepulveda Bl	ARCO / TOSCO
10	Sepulveda Bl	Alameda St
11	Sepulveda Bl	Intermodal Wy
12	Figueroa St	Del Amo Bl
13	Figueroa St	Torrance Bl
14	Figueroa St	Carson Town Center
15	Figueroa St	Carson St
16	Figueroa St	223rd St
17	Figueroa St	228th St
18	Figueroa St	234th St
19	Figueroa St	Carriagedale Dr
20	Victoria St	Broadway
21	Victoria St	Main St
22	Victoria St	Wall St
23	Victoria St	Avalon Bl
24	Victoria St	Tamcliff Av
25	Victoria St	Birchknoll Dr
26	Victoria St	Central Av
27	Victoria St	Bishop Av
28	Carson St	Morenta Av
29	Carson St	Main St
30	Carson St	Orrick Av
31	Carson St	Dolores St
32	Carson St	Grace Av
33	Carson St	Avalon Bl
34	Carson St	Bonita St
35	Carson St	Vera St
36	Carson St	Martin St
37	Carson St	Wilmington Av
38	Carson St	Alameda St
39	Carson St	Harbor View Av
40	Carson St	Evonda Av
41	Torrance Bl	Carson Towne Center
42	Torrance Bl	Main St
43	Del Amo Bl	Avalon Bl
44	Del Amo Bl	Leapwood Av
45	Del Amo Bl	Central Av
46	223rd St	Moneta Av
47	223rd St	Main St

48	223rd St	Dolores St
49	223rd St	Grace Av
50	223rd St	Avalon Bl
51	223rd St	Bonita St
52	223rd St	Wilmington Av
53	223rd St	ARCO
54	223rd St	Alameda St

CITY OF HERMOSA BEACH

City Hall: 1315 Valley Drive, 90254

Central System Location: 900 South Fremont Ave, Alhambra, 91803

Number	Arterial Street Name	Cross Street Name
1	Aviation Bl	Prospect Av
2	Aviation Bl	Ocean Dr

CITY OF LOMITA

City Hall: 24300 Narbonne Avenue, 90717

Central System Location: 900 South Fremont Ave, Alhambra, 91803

Number	Arterial Street Name	Cross Street Name
1	Lomita Bl	Arlington Av
2	Lomita Bl	Pennsylvania Av
3	Lomita Bl	Narbonne Av
4	Lomita Bl	Eshelman Av
5	Lomita Bl	Walnut St

CITY OF RANCHO PALOS VERDES

City Hall: 30940 Hawthorne Boulevard, 90275

Central System Location: 900 South Fremont Ave, Alhambra, 91803

Number	Arterial Street Name	Cross Street Name
1	Crenshaw Bl	Silver Spur Rd
2	Crenshaw Bl	Palos Verdes Dr N
3	Crenshaw Bl	Indian Peak Rd

CITY OF REDONDO BEACH		
City Hall: 415 Diamond Street, 90277		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Aviation Bl	Grant Av
2	Aviation Bl	Ford Av
3	Anita St	Prospect Av
4	Anita St	Harkness Ln
5	190th St	Rindge Ln
6	190th St	Meyer Ln
7	190th St	Anza Av
8	190th St	Inglewood Av
9	Manhattan Beach Bl	Doolittle Dr
10	Manhattan Beach Bl	Rindge Ln
11	Manhattan Beach Bl	Redondo Beach Av
12	Manhattan Beach Bl	Dow Av
13	Torrance Bl	Francisca Av
14	Torrance Bl	Camino Real
15	Torrance Bl	Prospect St
16	Marine Av	Tomboy/Costco Entrance

CITY OF ROLLING HILLS ESTATES		
City Hall: 4045 Palos Verdes, Drive North, 90274		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Hawthorne Bl	Silver Spur Rd
2	Hawthorne Bl	Palos Verdes Dr N
3	Hawthorne Bl	Indian Peak Rd

**POMONA VALLEY TRAFFIC FORUM
PHASE II INTERSECTIONS**

COUNTY OF LOS ANGELES		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	VALLEY BOULEVARD	HACIENDA BOULEVARD
2	VALLEY BOULEVARD	STIMSON AVENUE
3	VALLEY BOULEVARD	OLD VALLEY BOULEVARD
4	VALLEY BOULEVARD	FERRERO LANE
5	VALLEY BOULEVARD	WICKFORD AVENUE
6	VALLEY BOULEVARD	AZUSA WAY
7	VALLEY BOULEVARD	HURLEY STREET
8	VALLEY BOULEVARD	HAMBLEDON AVENUE
9	VALLEY BOULEVARD	GIANO AVENUE
10	VALLEY BOULEVARD	YORBITA ROAD
11	VALLEY BOULEVARD	LA SEDA ROAD
12	VALLEY BOULEVARD	FAIRWAY DRIVE/CAMINO DE TEODOR
13	GALE AVENUE	HACIENDA BOULEVARD
14	GALE AVENUE	STIMSON AVENUE
15	GALE AVENUE	BIXBY DRIVE
16	GALE AVENUE	GREEN DRIVE
17	GALE AVENUE	EVERGREEN PLACE
18	GALE AVENUE	AZUSA AVENUE
19	GALE AVENUE	INDUSTRY MARKETPLACE
20	GALE AVENUE	HATCHER AVENUE
21	GALE AVENUE	STONER CREEK ROAD
22	GALE AVENUE	ROWLAND HEIGHTS PLAZA
23	GALE AVENUE	FULLERTON ROAD
24	GALE AVENUE	COINER COURT
25	GALE AVENUE/WALNUT DRIVE	NOGALES STREET
26	WALNUT DRIVE	FAIRWAY DRIVE
27	COLIMA ROAD	HACIENDA BOULEVARD
28	COLIMA ROAD	ALLENTON AVENUE
29	COLIMA ROAD	STIMSON AVENUE
30	COLIMA ROAD	PUNTA DEL ESTE DRIVE
31	COLIMA ROAD	DAWN HAVEN ROAD/ HALLIBURTON ROAD
32	COLIMA ROAD	COUNTRYWOOD AVENUE
33	COLIMA ROAD	MANOR GATE ROAD
34	COLIMA ROAD	AZUSA AVENUE
35	COLIMA ROAD	ALBATROSS ROAD
36	COLIMA ROAD	WALNUT HALL ROAD
37	COLIMA ROAD	OTTERBEIN AVENUE

38	COLIMA ROAD	BANIDA AVENUE
39	COLIMA ROAD	NAUSIKA AVENUE
40	COLIMA ROAD	FAIRWAY DRIVE/BREA CANYON CUT OFF
41	COLIMA ROAD	ROYAL VISTA GOLF COURSE
42	COLIMA ROAD	LAKE CANYON DRIVE
43	COLIMA ROAD	TIERRA LUNA
44	HACIENDA BOULEVARD	DON JULIAN ROAD
45	HACIENDA BOULEVARD	60 EXIT RAMP
46	HACIENDA BOULEVARD	THREE PALMS STREET
47	HACIENDA BOULEVARD	LUJON STREET
48	HACIENDA BOULEVARD	HALLIBURTON ROAD
49	HACIENDA BOULEVARD	NEWTON STREET
50	HACIENDA BOULEVARD	LA MONDE STREET
51	HACIENDA BOULEVARD	TETLEY STREET
52	HACIENDA BOULEVARD	LA SUBIDA DRIVE
53	HACIENDA BOULEVARD	LOS ALTOS DRIVE
54	AZUSA AVENUE	PEPPERBROOK WAY
55	AZUSA AVENUE	RAILROAD STREET
56	AZUSA AVENUE	ANAHEIM AND PUENTE ACCESS ROAD
57	FULLERTON ROAD	ARENTH AVENUE
58	FULLERTON ROAD	SAN JOSE AVENUE
59	FULLERTON ROAD	RAILROAD STREET
60	FULLERTON ROAD	LOS PALACIOS DRIVE
61	FULLERTON ROAD	CROSSHAVEN DRIVE
62	FULLERTON ROAD	SORDELLO STREET
63	FULLERTON ROAD	GALATINA STREET
64	FULLERTON ROAD	MESCAL STREET
65	FULLERTON ROAD	PATHFINDER ROAD
66	NOGALES STREET	ARENTH AVENUE
67	NOGALES STREET	SAN JOSE AVENUE
68	NOGALES STREET	DAISETTA STREET
69	FAIRWAY DRIVE	BUSINESS PARKWAY
70	FAIRWAY DRIVE	WALNUT DRIVE

CITY OF CLAREMONT		
Central System Location: City Hall - 207 Harvard Avenue, 91711		
Number	Arterial Street Name	Cross Street Name
1	TOWNE AVENUE	SCRIPPS DRIVE
2	TOWNE AVENUE	BRIARCROFT ROAD
3	INDIAN HILL BOULEVARD	RADCLIFFE DRIVE
4	INDIAN HILL BOULEVARD	CLAREMONT HIGH SCHOOL
5	INDIAN HILL BOULEVARD	8TH STREET
6	INDIAN HILL BOULEVARD	ARROW HIGHWAY

7	INDIAN HILL BOULEVARD	VISTA AVENUE/OAK PARK DRIVE
8	INDIAN HILL BOULEVARD	SAN JOSE AVENUE
9	ARROW HIGHWAY	MOUNTAIN AVENUE
10	ARROW HIGHWAY	COLLEGE AVENUE
11	ARROW HIGHWAY	MILLS AVENUE
12	SAN JOSE AVENUE	LEHIGH DRIVE

CITY OF POMONA		
Central System Location: City Hall - 505 South Garey Avenue, 91766		
Number	Arterial Street Name	Cross Street Name
1	TOWNE AVENUE	RICHBROOK AVENUE
2	TOWNE AVENUE	HARRISON STREET
3	TOWNE AVENUE	BONITA AVENUE
4	TOWNE AVENUE	ARROW HIGHWAY
5	TOWNE AVENUE	SAN ANTONIO AVENUE
6	TOWNE AVENUE	BANGOR STREET
7	TOWNE AVENUE	LA VERNE AVENUE
8	TOWNE AVENUE	SAN BERNARDINO AVENUE
9	TOWNE AVENUE	LINCOLN AVENUE

CITY OF SAN DIMAS		
Central System Location: City Hall - 245 East Bonita Avenue, 91773		
Number	Arterial Street Name	Cross Street Name
1	GLADSTONE STREET	LONE HILL AVENUE
2	GLADSTONE STREET	AMELIA AVENUE-PEARLANNA DRIVE
3	OVERLAND COURT	LONE HILL AVENUE
4	BONITA AVENUE	SAN DIMAS AVENUE
5	BONITA AVENUE	WALNUT AVENUE
6	BONITA AVENUE	SAN DIMAS CANYON ROAD
7	ARROW HIGHWAY	EUCLA AVENUE
8	ARROW HIGHWAY	CATARACT AVENUE
9	CIENEGA AVENUE	LONE HILL AVENUE
10	LONE HILL AVENUE	COVINA BOULEVARD
11	COVINA BOULEVARD	BADILLO STREET
12	COVINA BOULEVARD	SAINTS COURT
13	COVINA BOULEVARD	CLIFFSIDE DRIVE

SAN GABRIEL VALLEY TRAFFIC FORUM PHASE II INTERSECTIONS

COUNTY OF LOS ANGELES		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Arrow Hwy	Citrus Ave.
2	Grand Ave.	Cienega St.
3	Grand Ave.	Covina Blvd.
4	Grand Ave.	Cypress St.
5	Grand Ave.	Puente St.
6	Grand Ave.	Rowland St.
7	Arrow Hwy	Barranca Ave
8	Arrow Hwy	Bonnie Cove Ave
9	Arrow Hwy	Glendora Ave
10	Arrow Hwy	Sunflower Ave
11	Arrow Hwy	Valley Center Ave

CITY OF ALHAMBRA		
Central System Location: City Hall - 111 South First Street, 91801		
Number	Arterial Street Name	Cross Street Name
1	Atlantic Blvd.	Huntington Dr.
2	Atlantic Blvd.	Garfield Ave.
3	Atlantic Blvd.	Pine St.
4	Atlantic Blvd.	Spruce St.
5	Atlantic Blvd.	Alhambra Rd.
6	Atlantic Blvd.	Woodward Ave.
7	Atlantic Blvd.	Washington St.
8	Atlantic Blvd.	Commonwealth Ave.
9	Atlantic Blvd.	Shorb St.
10	Atlantic Blvd.	Glendon Way.
11	Main St.	Palm Ave.
12	Main St.	Raymond Ave.
13	Main St.	Marengo Ave.
14	Main St.	Electric Ave.
15	Valley Blvd.	Westmont Dr.
16	Valley Blvd.	Cabrillo Ave.
17	Valley Blvd.	Grand View Dr.
18	Valley Blvd.	Fremont Ave.
19	Valley Blvd.	Edgewood Dr.
20	Valley Blvd.	Raymond Ave.
21	Valley Blvd.	Marengo Ave.
22	Valley Blvd.	Benito Ave.
23	Valley Blvd.	Marguerita Ave.
24	Valley Blvd.	Atlantic Blvd.
25	Valley Blvd.	Ninth St.
26	Valley Blvd.	Sixth St.
27	Valley Blvd.	Fourth St.
28	Valley Blvd.	Garfield Ave.
29	Valley Blvd.	Chapel Ave.
30	Valley Blvd.	Almansor St.
31	Valley Blvd.	Granada Ave.
32	Valley Blvd.	Vega St.
33	Valley Blvd.	New Ave.

CITY OF ARCADIA		
Central System Location: City Hall - 240 West Huntington Drive, 91007		
Number	Arterial Street Name	Cross Street Name
1	Las Tunas Dr.	El Monte Ave.
2	Las Tunas Dr.	Holly Ave.
3	Las Tunas Dr.	Live Oak Ave.
4	Las Tunas Dr.	Warren Way
5	Live Oak Ave.	Second Ave.
6	Live Oak Ave.	Sixth Ave.
7	Live Oak Ave.	Greenfield Ave/Myrtus Ave
8	Santa Anita Ave.	Camino Real Ave.
9	Santa Anita Ave.	Longden Ave.
10	Santa Anita Ave.	Wistaria Ave.
11	Santa Anita Ave.	Live Oak Av

CITY OF AZUSA		
City Hall: 213 East Foothill Boulevard, 91702		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Alosta Ave.	Calera Ave.
2	Alosta Ave.	Citrus Ave.
3	Alosta Ave.	Foothill Ave.
4	Foothill Blvd.	Cerritos Ave.
5	Foothill Blvd.	Pasadena Ave.
6	Foothill Blvd.	Alameda Ave.
7	Foothill Blvd.	Orange Ave.
8	Foothill Blvd.	Vernon Ave.
9	Foothill Blvd.	Virginia / Georgia
10	Foothill Blvd.	Todd Ave.
11	Foothill Blvd.	Azusa Ave.
12	Foothill Blvd.	San Gabriel Ave.
13	Azusa Ave.	Third St.
14	Azusa Ave.	Fifth St.
15	Azusa Ave.	Newburgh St.

CITY OF BALDWIN PARK		
City Hall: 14403 East Pacific Avenue, 91706		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Badillo Ave.	Puente Ave.
2	Baldwin Park Blvd.	Ramona Blvd.
3	Downing Ave.	Ramona Blvd.
4	Ramona Blvd.	Syracuse
5	Ramona Blvd.	Barnes
6	Ramona Blvd.	Bogart Ave
7	Ramona Blvd.	Earl Ave.
8	Ramona Blvd.	Foster Ave.
9	Ramona Blvd.	Francisquito Ave.
10	Ramona Blvd.	La Rica Ave.
11	Ramona Blvd.	Maine Ave.
12	Ramona Blvd.	Merced Ave.
13	Ramona Blvd.	Monterey Ave.
14	Ramona Blvd.	Puente Ave.
15	Ramona Blvd.	Stewart Ave.
16	Ramona Blvd.	Badillo Ave.

CITY OF COVINA		
Central System Location: City Hall - 534 North Barranca, 91723		
Number	Arterial Street Name	Cross Street Name
1	Azusa Ave.	Covina Blvd.
2	Azusa Ave.	Cypress St.
3	Azusa Ave.	Grondahl St.
4	Azusa Ave.	SEARS
5	Grand Ave.	Arrow Hwy
6	Grand Ave.	Badillo St.
7	Grand Ave.	Edna Place
8	Grand Ave.	San Bernardino Rd.
9	San Bernardino Rd.	Azusa Ave.

CITY OF DUARTE		
City Hall: 1600 Huntington Drive, 91010		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Huntington Dr.	Las Lomas Rd.
2	Huntington Dr.	Highland Ave.
3	Huntington Dr.	Buena Vista St.
4	Huntington Dr.	Mtn. Vista Plaza
5	Huntington Dr.	Crestfield Dr.

CITY OF EL MONTE		
City Hall: 11333 Valley Boulevard, 91732		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Garvey Ave.	Merced Ave.
2	Garvey Ave.	Central Ave.
3	Garvey Ave.	Santa Anita Ave.
4	Garvey Ave.	Lexington Ave.
5	Garvey Ave.	Tyler Ave.
6	Garvey Ave.	Valley Blvd.
7	Garvey Ave.	Peck Rd.
8	Garvey Ave.	Meeker Ave.
9	Garvey Ave.	Mountain View Rd.
10	Garvey Ave.	Potero Ave.
11	Garvey Ave.	Durfee Ave.
12	Peck Rd.	Lower Azusa Rd.
13	Peck Rd.	Meeker Ave.
14	Peck Rd.	Valley Blvd.
15	Peck Rd.	Alloway St.
16	Peck Rd.	Forest Grove
17	Peck Rd.	Ramona Blvd.
18	Peck Rd.	Bryant Rd.
19	Peck Rd.	Lambert Ave.
20	Peck Rd.	Emery St.
21	Peck Rd.	Hemlock St.
22	Peck Rd.	Stewart St.
23	Peck Rd.	Federal Dr.
24	Ramona Blvd.	Cogswell Rd.
25	Ramona Blvd.	Maxson Rd.
26	Ramona Blvd.	La Madera Ave.
27	Ramona Blvd.	Gilman Rd.
28	Santa Anita Ave.	Ramona Blvd.

29	Santa Anita Ave.	Lower Azusa Rd.
30	Santa Anita Ave.	Bodger St.
31	Santa Anita Ave.	Mildred St.
32	Santa Anita Ave.	Bryant Rd.
33	Santa Anita Ave.	Tyler Ave.
34	Santa Anita Ave.	Mulhall St.
35	Santa Anita Ave.	Amador St.
36	Santa Anita Ave.	Asher St.
37	Santa Anita Ave.	Hondo Pkwy.
38	Santa Anita Ave.	Kings Row
39	Tyler Ave.	Valley Blvd.
40	Valley Blvd.	Mountain View Rd.
41	Valley Blvd.	Baldwin Ave.
42	Valley Blvd.	Ramona Blvd.
43	Valley Blvd.	Arden Dr.
44	Valley Blvd.	Gibson Rd.
45	Valley Blvd.	Between Arden Dr. & Santa Anita Ave.
46	Valley Blvd.	Center Ave.
47	Valley Blvd.	Monterey Ave.

CITY OF GLENDORA		
Central System Location: City Hall - 116 East Foothill Boulevard, 91741		
Number	Arterial Street Name	Cross Street Name
1	Grand Ave.	Gladstone St.
2	Grand Ave.	Muana Loa Ave.
3	Alosta (Route 66)	Barranca Ave.
4	Alosta (Route 66)	Vecino
5	Alosta (Route 66)	Grand Ave.
6	Alosta (Route 66)	Vermont Ave.
7	Alosta (Route 66)	Glendora Ave.
8	Alosta (Route 66)	Pasadena
9	Alosta (Route 66)	Elmwood Ave.
10	Alosta (Route 66)	Lorraine Ave.
11	Alosta (Route 66)	Hunters Trail
12	Alosta (Route 66)	Compromise Line Rd.
13	Alosta (Route 66)	Lone Hill Rd.

CITY OF IRWINDALE		
Central System Location: City Hall - 5050 N. Irwindale Avenue, 91706		
Number	Arterial Street Name	Cross Street Name
1	Arrow Hwy	Maine Ave.
2	Arrow Hwy	Rivergrade Rd.
3	Arrow Hwy	Azusa Canyon Rd.
4	Arrow Hwy	Buena Vista St.
5	Arrow Hwy	Irwindale Ave.
6	Arrow Hwy	Live Oak Ave.
7	Arrow Hwy	Live Oak Ave.
8	Arrow Hwy	Morada St.
9	Arrow Hwy	Santa Fe Dan Spillway (Flashing Beacon)
10	Foothill Blvd.	Irwindale Ave.
11	Gladstone St.	Irwindale Ave.
12	Irwindale Ave.	Calle Del Norte
13	Irwindale Ave.	First St.
14	Live Oak Ave.	Peck Rd.

CITY OF MONROVIA		
City Hall: 415 South Ivy Avenue, 91016		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Huntington Dr.	Fifth Ave.
2	Huntington Dr.	Monterey Rd.
3	Huntington Dr.	Hwy Espianade
4	Huntington Dr.	Mayflower Ave.
5	Huntington Dr.	Magnolia Ave.
6	Huntington Dr.	Myrtle Ave.
7	Huntington Dr.	California Ave.
8	Huntington Dr.	Shamrock Ave.
9	Huntington Dr.	Mountain Ave.

CITY OF MONTEREY PARK		
City Hall: 320 W. Newmark Avenue, 91754		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Atlantic Blvd.	Emerson Ave.
2	Atlantic Blvd.	Midblock Emerson/Garvey
3	Atlantic Blvd.	Garvey Ave.
4	Atlantic Blvd.	Newmark Ave.
5	Atlantic Blvd.	Harding Ave.
6	Atlantic Blvd.	El Portal Place
7	Atlantic Blvd.	Cadiz St.
8	Atlantic Blvd.	Sevilla St.
9	Atlantic Blvd.	El Repetto Dr.
10	Atlantic Blvd.	Brightwood St.
11	Atlantic Blvd.	Floral Dr.
12	Atlantic Blvd.	Midblock Floral/Riggin
13	Atlantic Blvd.	Cesar Chavez/Riggin
14	Garfield Ave.	Newmark Ave.
15	Garvey Ave.	Casuda Canyon
16	Garvey Ave.	Hitchcock Dr.
17	Garvey Ave.	Chandler Ave.
18	Garvey Ave.	Ynez Ave.
19	Garvey Ave.	McPherrin Ave.
20	Garvey Ave.	Ramona Ave.
21	Garvey Ave.	Nicholson Ave.
22	Garvey Ave.	Alhambra Ave.
23	Garvey Ave.	Orange Ave.
24	Garvey Ave.	New Ave.
25	Monterey Pass Rd.	Fremont Ave .
26	Garvey Ave.	Lincoln Ave.

CITY OF ROSEMEAD		
Central System Location: City Hall - 8838 Valley Boulevard, 91770		
Number	Arterial Street Name	Cross Street Name
1	Garvey Ave.	Jackson Ave.
2	Garvey Ave.	Delmar Ave.
3	Garvey Ave.	Kelburn Ave.
4	Garvey Ave.	San Gabriel Blvd.
5	Garvey Ave.	Delta Ave./ Langford Place
6	Garvey Ave.	Walnut Grove Ave.
7	Garvey Ave.	Muscatel Ave.
8	Garvey Ave.	Rosemead Place/ River Ave.
9	Garvey Ave.	Driggs Ave.
10	Emerson Ave.	San Gabriel Blvd.
11	Valley Blvd.	Delta Ave.
12	Valley Blvd.	Walnut Grove Ave.
13	Valley Blvd.	Muscatel Ave.
14	Valley Blvd.	Ivar Ave.
15	Valley Blvd.	Rosemead Place
16	Valley Blvd.	Hart Ave.
17	Valley Blvd.	Rio Honcho Ave.
18	Valley Blvd.	Grand Ave.
19	Valley Blvd.	Temple City Blvd.
20	San Gabriel Blvd.	Graves Ave.
21	San Gabriel Blvd.	Angeles Ave.
22	San Gabriel Blvd.	Rush St.
23	San Gabriel Blvd.	Town Center Dr.
24	San Gabriel Blvd.	SR-60 WB Ramp
25	San Gabriel Blvd.	Delta Ave.

CITY OF SAN GABRIEL		
City Hall: 425 South Mission Drive, 91776		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Las Tunas Dr.	Mission Dr.
2	Las Tunas Dr.	Santa Anita St.
3	Las Tunas Dr.	San Marino Ave.
4	Las Tunas Dr.	Del Mar Ave.
5	Las Tunas Dr.	San Gabriel Blvd.
6	Las Tunas Dr.	Charlotte Ave.
7	Las Tunas Dr.	Willard Ave.
8	Las Tunas Dr.	Burton Ave.
9	San Gabriel Blvd.	Broadway
10	San Gabriel Blvd.	Mission Rd.
11	San Gabriel Blvd.	Chestnut Ave.
12	San Gabriel Blvd.	Valley Blvd.
13	San Gabriel Blvd.	Marshall St.
14	San Gabriel Blvd.	Scott St.
15	Valley Blvd.	Walnut St.
16	Valley Blvd.	Del Mar Ave.
17	Valley Blvd.	Abbot Ave.
18	Valley Blvd.	Prospect Ave.

CITY OF SAN MARINO		
City Hall: 2200 Huntington Drive, 91108		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Huntington Dr.	San Gabriel Blvd.
2	Huntington Dr.	Grenada Ave.
3	Huntington Dr.	Oak Knoll Ave.
4	Huntington Dr.	Saint Albans Rd.
5	Huntington Dr.	Virginia Rd.
6	Huntington Dr.	Cambridge Rd./ West Dr.
7	Huntington Dr.	San Marino Blvd./Sierra Madre Blvd.
8	Huntington Dr.	Del Mar Ave.
9	Huntington Dr.	Gainsborough Dr./ Bradbury Rd..

CITY OF SOUTH PASADENA		
City Hall: 1414 Mission Street, 91030		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Fair Oaks Ave.	Huntington Dr.
2	Huntington Dr.	Fremont Ave.
3	Huntington Dr.	Marengo Ave.
4	Huntington Dr.	Fletcher Ave.
5	Fremont Ave.	Maple Ave.
6	Fremont Ave.	Oak St.
7	Fremont Ave.	Rollin St.
8	Fremont Ave.	Bank St.
9	Fremont Ave.	Monterey Rd.
10	Fremont Ave.	El Centro St.
11	Fremont Ave.	Mission St.
12	Fremont Ave.	Greveila St.

TEMPLE CITY		
City Hall: 9701 Las Tunas Drive, 91780		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Las Tunas Dr.	Sultana Ave.
2	Las Tunas Dr.	Loma Ave.
3	Las Tunas Dr.	Encinita Ave.
4	Las Tunas Dr.	Alessandro Ave.
5	Las Tunas Dr.	Oak Ave.
6	Las Tunas Dr.	Cloverly Ave.
7	Las Tunas Dr.	Primrose Ave.
8	Las Tunas Dr.	Temple City Blvd.
9	Las Tunas Dr.	Camellia Ave.
10	Las Tunas Dr.	Kauffman Ave.
11	Las Tunas Dr.	Golden West Ave.

GATEWAY CITIES TRAFFIC FORUM PHASE II INTERSECTIONS

COUNTY OF LOS ANGELES		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	FIRESTONE BOULEVARD	HOOPER AVENUE
2	FIRESTONE BOULEVARD	ZAMORA AVENUE
3	FIRESTONE BOULEVARD	COMPTON AVENUE
4	FIRESTONE BOULEVARD	MAIE AVENUE
5	FIRESTONE BOULEVARD	GRAHAM AVENUE
6	FIRESTONE BOULEVARD	HOLMES AVENUE
7	FIRESTONE BOULEVARD	ANZAC AVENUE
8	FIRESTONE BOULEVARD	IVY STREET
9	FIRESTONE BOULEVARD	ALAMEDA STREET
10	MILLS AVENUE	TELEGRAPH ROAD
11	MILLS AVENUE	TRUMBALL STREET
12	MILLS AVENUE	MULBERRY DRIVE
13	MILLS AVENUE	OVAL DRIVE / HAWES STREET
14	TELEGRAPH ROAD	GUNN AVENUE
15	TELEGRAPH ROAD	TELECHRON AVENUE
16	TELEGRAPH ROAD	VICTORIA AVENUE
17	TELEGRAPH ROAD	VALLEY VIEW AVENUE
18	TELEGRAPH ROAD	COLIMA ROAD
19	TELEGRAPH ROAD	LEFFINGWELL ROAD
20	TELEGRAPH ROAD	SPRINGVIEW DRIVE
21	SLAUSON BOULEVARD	PIONEER BOULEVARD
22	SLAUSON BOULEVARD	MILLERGROVE DRIVE
23	SLAUSON BOULEVARD	ALBUTIS AVENUE
24	SLAUSON BOULEVARD	NORWALK BOULEVARD
25	MULBERRY DRIVE	PAINTER DRIVE
26	MULBERRY DRIVE	LAUREL AVENUE
27	MULBERRY DRIVE	CALMADA AVENUE
28	MULBERRY DRIVE	GUNN AVENUE
29	MULBERRY DRIVE	COLIMA ROAD
30	MULBERRY DRIVE	LA MIRADA BOULEVARD
31	PIONEER BOULEVARD	Washington BOULEVARD
32	PIONEER BOULEVARD	WADDEL STREET
33	PIONEER BOULEVARD	LOS NIETOS ROAD
34	NORWALK BOULEVARD	WASHINGTON BOULEVARD
35	NORWALK BOULEVARD	BROADWAY AVENUE
36	NORWALK BOULEVARD	WALNUT STREET
37	CARMENITA ROAD	PAINTER AVENUE

38	CARMENITA ROAD	TRUMBALL STREET
39	LA MIRADA BOULEVARD	LAMBERT ROAD
40	LA MIRADA BOULEVARD	HORNELL STREET
41	LA MIRADA BOULEVARD	LEFFINGWELL ROAD
42	IMPERIAL HIGHWAY	MARQUARDT AVENUE
43	IMPERIAL HIGHWAY	MEYER ROAD
44	IMPERIAL HIGHWAY	VALLEY VIEW AVENUE
45	IMPERIAL HIGHWAY	1ST STREET
46	ROSECRANS AVENUE	ATLANTIC AVENUE
47	Atlantic Ave	Compton Blvd
48	Atlantic Ave	Myrrh St
49	Atlantic Ave	Rosecrans Ave
50	Florence Ave	Bell Ave
51	Florence Ave	Graham Ave
52	Florence Ave	Holmes Ave
53	Florence Ave	Hooper Ave
54	Florence Ave	Miramonte Blvd
55	Florence Ave	Parmelee Ave
56	Florence Ave	Wilson Ave
57	Gage Ave	Hooper Ave
58	Gage Ave	Miramonte Ave
59	Gage Ave	Holmes Ave
60	Pacific Blvd	Broadway
61	Pacific Blvd	Grand Ave
62	Pacific Blvd	Live Oak St
63	Santa Fe Ave	Broadway
64	Slauson Ave	Holmes Ave
65	Slauson Ave	Hooper Ave

CITY OF BELL		
City Hall: 6330 Pine Avenue, 90201		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Atlantic Ave	Bell Pl
2	Atlantic Ave	Florence Ave
3	Atlantic Ave	Bell Ave. & Brompton Ave
4	Atlantic Ave	Shopping Center Dr
5	Atlantic Blvd	Randolph St
6	Bandini Blvd	Eastern Ave
7	Eastern Ave	Fry St
8	Florence Ave	Bear Ave
9	Florence Ave	Crafton Ave
10	Florence Ave	Flora Ave
11	Florence Ave	Otis Ave
12	Florence Ave	Vinevale Ave
13	Florence Ave	Walker Ave
14	Florence Ave	Wilcox Ave
15	Gage Ave	Maywood Ave
16	Gage Ave	Orchard Ave
17	Gage Ave	Bear Ave
18	Gage Ave	Gifford Ave
19	Gage Ave	Otis Ave
20	Gage Ave	Pine Ave
21	Gage Ave	Prospect Ave
22	Gage Ave	Heliotrope Ave
23	Gage Ave	Wilcox Ave
24	Gage Ave	Walker Ave. North & South

CITY OF BELL GARDENS		
City Hall: 7100 S. Garfield Avenue, 90201		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Eastern Ave	Clara St
2	Eastern Ave	Florence Ave
3	Eastern Ave	Garfield Ave
4	Eastern Ave	Jaboneria Rd
5	Eastern Ave	Live Oak St
6	Eastern Ave	Loveland St
7	Eastern Ave	Lubec St
8	Eastern Ave	Market Place
9	Eastern Ave	Muller St
10	Eastern Ave	Watcher St
11	Florence Ave	Ajax Ave
12	Florence Ave	El Selinda Ave
13	Florence Ave	Emil Ave
14	Florence Ave	Garfield Ave
15	Florence Ave	Ira Ave
16	Florence Ave	Jaboneria Rd
17	Florence Ave	Perry Rd
18	Florence Ave	Scout Ave
19	Gage Ave	El Selinda Ave
20	Gage Ave	Colmar Ave
21	Gage Ave	Jaboneria Rd
22	Gage Ave	Darwell Ave
23	Gage Ave	Garfield Ave
24	Gage Ave	Emil Ave
25	Gage Ave	Chalet Dr
26	Gage Ave	Greenwood Ave
27	Gage Ave	Eastern Ave
28	Garfield Ave	Loveland St
29	Garfield Ave	Cecilia St
30	Garfield Ave	Clara St
31	Garfield Ave	Florence Pl
32	Garfield Ave	Park In & Ira Ave

CITY OF COMMERCE		
Central System Location: City Hall, 2535 Commerce Way, 90040		
Number	Arterial Street Name	Cross Street Name
1	Gage Ave	Zindell Ave
2	Gage Ave	Slauson Ave

CITY OF CUDAHY		
City Hall: 5220 Santa Ana Street, 90201		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Atlantic Ave	Cecelia St. East & West
2	Atlantic Ave	Clara St
3	Atlantic Ave	Elizabeth St
4	Atlantic Ave	Live Oak St
5	Atlantic Ave	Salt Lake (Patata St.)
6	Atlantic Ave	Santa Ana St

CITY OF DOWNEY		
Central System Location: City Hall, 11111 Brookshire Avenue, 90241		
Number	Arterial Street Name	Cross Street Name
1	IMPERIAL HIGHWAY	OLD RIVER SCHOOL ROAD
2	IMPERIAL HIGHWAY	RIVES AVENUE
3	IMPERIAL HIGHWAY	SMALLWOOD AVENUE
4	IMPERIAL HIGHWAY	DUNROBIN AVENUE
5	IMPERIAL HIGHWAY	WOODRUFF AVENUE
6	FLORENCE AVENUE	OLD RIVER SCHOOL ROAD
7	FLORENCE AVENUE	BURKE AVENUE
8	FLORENCE AVENUE	RIVES AVENUE
9	FLORENCE AVENUE	TWEEDY LANE
10	FLORENCE AVENUE	PARAMOUNT BOULEVARD
11	FLORENCE AVENUE	DOWNEY AVENUE
12	FLORENCE AVENUE	BROOKSHIRE AVENUE
13	FLORENCE AVENUE	LAKEWOOD BOULEVARD
14	FLORENCE AVENUE	WOODRUFF AVENUE
15	FLORENCE AVENUE	NEWVILLE AVENUE
16	FLORENCE AVENUE	STUDEBAKER ROAD

CITY OF HUNTINGTON PARK		
City Hall: 6550 Miles Avenue, 90255		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Florence Ave	California Ave. & Salt Lake Ave.-2
2	Florence Ave	Miles Ave
3	Florence Ave	Mission Pl
4	Florence Ave	Mountain View Ave
5	Florence Ave	Pacific Blvd
6	Florence Ave	Rita Ave
7	Florence Ave	Santa Fe Ave
8	Florence Ave	Seville Ave
9	Florence Ave	State St
10	Gage Ave	Wilmington Ave
11	Gage Ave	Santa Fe Ave
12	Gage Ave	Malabar St
13	Gage Ave	Rugby Ave
14	Gage Ave	Pacific Blvd
15	Gage Ave	Rita Ave
16	Gage Ave	Seville Ave
17	Gage Ave	Miles Ave
18	Gage Ave	State St
19	Gage Ave	Hood Ave
20	Gage Ave	Salt Lake Ave
21	Pacific Blvd	55th St
22	Pacific Blvd	Belgrave Ave
23	Pacific Blvd	Clarendon Ave
24	Pacific Blvd	Ped Crossing
25	Pacific Blvd	Ped Crossing
26	Pacific Blvd	Ped Crossing
27	Pacific Blvd	Ped Crossing
28	Pacific Blvd	Randolph St
29	Pacific Blvd	Saturn Ave
30	Pacific Blvd	Slauson Ave
31	Pacific Blvd	Zoe Ave
32	Santa Fe Ave	Randolph St
33	Santa Fe Ave	Saturn Ave
34	Santa Fe Ave	Slauson Ave
35	Santa Fe Ave	Zoe Ave
36	Slauson Ave	Bickett St
37	Slauson Ave	Malabar St
38	Slauson Ave	Seville Ave
39	Slauson Ave	Soto St.& Miles Ave

CITY OF LA MIRADA		
City Hall: 13700 La Mirada Blvd., 90638		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	ROSECRANS AVENUE	BIOLA AVENUE
2	ROSECRANS AVENUE	FIGUERAS ROAD
3	ROSECRANS AVENUE	LA MIRADA BOULEVARD
4	ROSECRANS AVENUE	JALON ROAD
5	ROSECRANS AVENUE	ADELFA DRIVE
6	ROSECRANS AVENUE	SANTA GERTRUDIS AVENUE
7	ROSECRANS AVENUE	MERDADO AVENUE
8	IMPERIAL HIGHWAY	TELEGRAPH ROAD
9	IMPERIAL HIGHWAY	LA MIRADA BOULEVARD
10	IMPERIAL HIGHWAY	CORDOVA ROAD
11	IMPERIAL HIGHWAY	OCASO AVENUE
12	IMPERIAL HIGHWAY	OXFORD DRIVE
13	IMPERIAL HIGHWAY	SANTA GERTRUDIS AVENUE
14	LA MIRADA BOULEVARD	HUTCHINS ROAD
15	LA MIRADA BOULEVARD	TACUBA DRIVE
16	LA MIRADA BOULEVARD	BIOLA DRIVEWAY
17	LA MIRADA BOULEVARD	FOSTER ROAD
18	LA MIRADA BOULEVARD	CIVIC CENTER

CITY OF LYNNWOOD		
City Hall: 11330 Bullis Road, 90262		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Abbott Rd	Atlantic Ave
2	Atlantic Ave	Agnes St
3	Atlantic Ave	Arlington Ave
4	Atlantic Ave	Beechwood Ave
5	Atlantic Ave	Carlin Ave
6	Atlantic Ave	Cortland Ave
7	Atlantic Ave	Elmwood Ave
8	Atlantic Ave	Fernwood Ave
9	Atlantic Ave	Imperial Hwy
10	Atlantic Ave	M.L.K. Jr. Blvd
11	Long Beach Blvd	Burton Ave
12	Long Beach Blvd	Cedar Ave
13	Long Beach Blvd	Imperial Hwy
14	Long Beach Blvd	Josephine St
15	Long Beach Blvd	M.L.K. Jr. Blvd
16	Long Beach Blvd	Norton Ave
17	Long Beach Blvd	Sanboru Ave
18	Long Beach Blvd	State St

CITY OF MAYWOOD		
City Hall: 4319 E. Slauson Avenue, 90270		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Atlantic Blvd	55th St
2	Atlantic Blvd	57th St
3	Atlantic Blvd	60th St
4	Atlantic Blvd	61st St
5	Atlantic Blvd	Slauson Ave
6	Slauson Ave	Alamo Ave
7	Slauson Ave	Carmelita Ave
8	Slauson Ave	Corona Ave
9	Slauson Ave	Fishburn Ave
10	Slauson Ave	Gifford Ave
11	Slauson Ave	Heliotrope Ave
12	Slauson Ave	King Ave
13	Slauson Ave	Loma Vista Ave
14	Slauson Ave	Mayflower Ave
15	Slauson Ave	Maywood Ave
16	Slauson Ave	Pine Ave
17	Slauson Ave	Woodlawn Ave

CITY OF PARAMOUNT		
City Hall: 16400 Colorado Ave, 90723		
Central System Location: 11710 Telegraph Road, Santa Fe Springs, 90670		
Number	Arterial Street Name	Cross Street Name
1	PARAMOUNT BOULEVARD	HOWE STREET
2	ROSECRANS AVENUE	ORANGE AVENUE
3	ROSECRANS AVENUE	GARFIELD AVENUE
4	ROSECRANS AVENUE	PARAMOUNT BOULEVARD
5	ROSECRANS AVENUE	ANDERSON STREET
6	ROSECRANS AVENUE	DOWNEY AVENUE
7	Alondra Blvd	Atlantic Pl
8	Alondra Blvd	Garfield Ave
9	Alondra Blvd	Gundry Ave
10	Alondra Blvd	Hunsaker Ave
11	Alondra Blvd	Orange Ave
12	Cherry Ave	68th St
13	Garfield Ave	Jackson St
14	Garfield Ave	Jefferson St
15	Garfield Ave	Mendy St
16	Garfield Ave	Rosecrans Ave
17	Garfield Ave	Somerset Blvd

CITY OF PICO RIVERA		
City Hall:		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	SLAUSON BOULEVARD	PARAMOUNT BOULEVARD
2	SLAUSON BOULEVARD	CROSSWAY DRIVE
3	SLAUSON BOULEVARD	ROSEMEAD BOULEVARD
4	SLAUSON BOULEVARD	SERAPI AVENUE
5	SLAUSON BOULEVARD	PASSONS BOULEVARD
6	PARAMOUNT BOULEVARD	WASHINGTON BOULEVARD
7	PARAMOUNT BOULEVARD	REX ROAD
8	ROSEMEAD BOULEVARD	WASHINGTON BOULEVARD
9	ROSEMEAD BOULEVARD	REX ROAD

CITY OF SANTA FE SPRINGS		
Central System Location: City Hall, 11710 Telegraph Road, 90670		
Number	Arterial Street Name	Cross Street Name
1	ROSECRANS AVENUE	BLOOMFIELD AVENUE
2	ROSECRANS AVENUE	CARMENITA ROAD
3	ROSECRANS AVENUE	MARQUARDT AVENUE
4	ROSECRANS AVENUE	VALLEY VIEW AVENUE
5	FLORENCE AVENUE	ORR AND DAY ROAD
6	FLORENCE AVENUE	PIONEER BOULEVARD
7	FLORENCE AVENUE	NORWALK BOULEVARD
8	FLORENCE AVENUE	BLOOMFIELD AVENUE
9	FLORENCE AVENUE	SHOEMAKER AVENUE
10	FLORENCE AVENUE	PAINTER AVENUE
11	SLAUSON BOULEVARD	SORENSEN AVENUE
12	MULBERRY DRIVE	SANTA FE SPRINGS ROAD
13	PIONEER BOULEVARD	PLACITA PLACE
14	PIONEER BOULEVARD	CHARLES WORTH ROAD
15	PIONEER BOULEVARD	ORR AND DAY ROAD
16	PIONEER BOULEVARD	JERSEY AVENUE
17	PIONEER BOULEVARD	ALBURTIS AVENUE
18	PIONEER BOULEVARD	MILANO AVENUE
19	PIONEER BOULEVARD	LAKELAND ROAD
20	NORWALK BOULEVARD	LOS NIETOS ROAD
21	NORWALK BOULEVARD	BELL RANCH DRIVE
22	NORWALK BOULEVARD	HAWKINS STREET
23	NORWALK BOULEVARD	LAKELAND ROAD
24	SANTA FE SPRINGS ROAD	LOS NIETOS ROAD
25	BLOOMFIELD AVENUE	LAKELAND ROAD
26	LOS NIETOS ROAD	GREENLEAF AVENUE
27	CARMENITA ROAD	ORDEN DRIVE
28	CARMENITA ROAD	FOSTER ROAD

CITY OF SOUTH GATE		
Central System Location: City Yard, 4244 Santa Ana St., 90280		
Number	Arterial Street Name	Cross Street Name
1	Atlantic Ave	Michigan Ave
2	Atlantic Ave	Southern Ave
3	Garfield Ave	Century Blvd
4	Garfield Ave	Gardendale St
5	Garfield Ave	Main St

EXHIBIT L-2

GATEWAY CITIES TRAFFIC FORUM PHASE II CCTV CAMERA LOCATIONS

COUNTY OF LOS ANGELES		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	IMPERIAL HIGHWAY	VALLEY VIEW AVENUE
2	ROSECRANS AVENUE	ATLANTIC AVENUE

CITY OF BELL GARDENS		
City Hall: 7100 S. Garfield Avenue, 90201		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Eastern Ave	Florence Ave

CITY OF COMMERCE		
Central System Location: City Hall, 2535 Commerce Way, 90040		
Number	Arterial Street Name	Cross Street Name
1	Eastern Ave	Slauson Ave

CITY OF COMPTON		
Central System Location: City Hall, 205 S. Willowbrook Ave, 90220		
Number	Arterial Street Name	Cross Street Name
1	Alondra Blvd	Atlantic Ave

CITY OF LA MIRADA		
City Hall: 13700 La Mirada Blvd., 90638		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	IMPERIAL HIGHWAY	TELEGRAPH ROAD

CITY OF LONG BEACH		
City Hall: 333 W. Ocean Blvd, 90802		
Central System Location: 1601 San Francisco Blvd, 90813		
Number	Arterial Street Name	Cross Street Name
1	Del Amo Blvd	Long Beach Blvd

CITY OF LYNWOOD		
City Hall: 11330 Bullis Road, 90262		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Atlantic Ave	Imperial Hwy
2	Long Beach Blvd	Imperial Hwy

CITY OF SANTA FE SPRINGS		
Central System Location: City Hall, 11710 Telegraph Road, 90670		
Number	Arterial Street Name	Cross Street Name
1	ROSECRANS AVENUE	VALLEY VIEW AVENUE

EXHIBIT L-2

CITY OF VERNON		
Cental System Location: City Hall, 4305 S Santa Fe Ave, 90058		
Number	Arterial Street Name	Cross Street Name
1	Atlantic Ave	Bandini Blvd

POMONA VALLEY TRAFFIC FORUM PHASE II CCTV CAMERA LOCATIONS

COUNTY OF LOS ANGELES		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	HACIENDA BOULEVARD	GALE AVENUE
2	NOGALES STREET	GALE AVENUE / WALNUT DRIVE
3	AZUSA AVENUE	GALE AVENUE
4	FULLERTON ROAD	GALE AVENUE
5	AZUSA AVENUE	COLIMA ROAD

CITY OF CLAREMONT		
Central System Location: City Hall - 207 Harvard Avenue, 91711		
Number	Arterial Street Name	Cross Street Name
1	ARROW HIGHWAY	INDIAN HILL

CITY OF LA VERNE		
Central System Location: City Hall - 3660 "D" Street, 91750		
Number	Arterial Street Name	Cross Street Name
1	ARROW HIGHWAY	WHITE AVENUE

SAN GABRIEL VALLEY TRAFFIC FORUM PHASE II CCTV CAMERA LOCATIONS

CITY OF COVINA		
Central System Location: City Hall - 534 North Barranca, 91723		
Number	Arterial Street Name	Cross Street Name
1	ARROW HIGHWAY	AZUSA AVENUE

CITY OF EL MONTE		
City Hall: 11333 Valley Boulevard, 91732		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	VALLEY BOULEVARD	SANTA ANITA AVENUE

CITY OF MONROVIA		
City Hall: 415 South Ivy Avenue, 91016		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	HUNTINGTON DRIVE	I-210

CITY OF MONTEREY PARK		
City Hall: 320 W. Newmark Avenue, 91754		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	GARVEY AVENUE	ATLANTIC BOULEVARD

CITY OF SAN GABRIEL		
City Hall: 425 South Mission Drive, 91776		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	LAS TUNAS DRIVE	SAN GABRIEL BOULEVARD
2	VALLEY BOULEVARD	SAN GABRIEL BOULEVARD

CITY OF SOUTH PASADENA		
City Hall: 1414 Mission Street, 91030		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	HUNTINGTON DRIVE	ATLANTIC BOULEVARD

SOUTH BAY TRAFFIC FORUM PHASE II CCTV CAMERA LOCATIONS

COUNTY OF LOS ANGELES		
Hawthorne City Hall: 4455 W. 126th St., Hawthorne, 90250		
Central System Location: 900 S. Fremont Avenue, Alhambra, CA 91803		
Number	Arterial Street Name	Cross Street Name
1	Normandie Av	Century Blvd

CITY OF HAWTHORNE		
City Hall: 4455 W. 126th St., Hawthorne, 90250		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Inglewood Av	Rosecrans Av

CITY OF HAWTHORNE		
County Firestation 160: 5323 W. Rosecrans Ave, Hawthorne, 90250		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Aviation Bl	Rosecrans Av
2	Aviation Bl	Rosecrans Av

CITY OF EL SEGUNDO		
County Firestation 160: 5323 W. Rosecrans Ave, Hawthorne, 90250		
Central System Location: 900 South Fremont Ave, Alhambra, 91803		
Number	Arterial Street Name	Cross Street Name
1	Aviation Bl	El Segundo Bl

**GATEWAY CITIES TRAFFIC FORUM
PROPOSED & EXISTING HARDWIRE COMMUNICATIONS**

Connection	Street Name	Limits
FIBER	TELEGRAPH ROAD	PARAMOUNT BOULEVARD TO EASTERLY CITY BOUNDARY OF PARAMOUNT
PROPOSED FIBER	CARMENITA ROAD	TELEGRAPH ROAD TO IMPERIAL HIGHWAY
PROPOSED FIBER	IMPERIAL HIGHWAY	SHOEMAKER AVENUE TO CARMENITA ROAD
FIBER	FIRESTONE BOULEVARD	RYERSON AVENUE TO STEWART AND GRAY ROAD
FIBER	LAKEWOOD BOULEVARD	TELEGRAPH ROAD TO IMPERIAL HIGHWAY
FIBER	STEWART AND GRAY	LAKEWOOD BOULEVARD TO BELLFLOWER BOULEVARD
FIBER	BELLFLOWER BOULEVARD	STEWART AND GRAY ROAD TO IMPERIAL HIGHWAY
PROPOSED FIBER	IMPERIAL HIGHWAY	PARAMOUNT BOULEVARD TO BELLFLOWER BOULEVARD
PROPOSED FIBER	TELEGRAPH ROAD	SANTA FE SPRINGS WESTERLY CITY BOUNDARY TO CARMENITA ROAD
PROPOSED FIBER	IMPERIAL HIGHWAY	SANTA FE SPRINGS WESTERLY CITY BOUNDARY TO SHOEMAKER AVENUE
PROPOSED FIBER	IMPERIAL HIGHWAY	ORR AND DAY ROAD TO LOS ANGELES COUNTY REGISTRAR/RECORDER OFFICE: 12400 IMPERIAL HIGHWAY, NORWALK, 90650
PROPOSED FIBER	FIRESTONE BOULEVARD	STEWART AND GRAY ROAD TO ORR AND DAY ROAD
PROPOSED FIBER	ALAMEDA ST	WASHINGTON BLVD TO DEL AMO BLVD

POMONA VALLEY TRAFFIC FORUM PROPOSED & EXISTING HARDWIRE COMMUNICATIONS

Connection	Street Name	Limits
TWISTED PAIR	INDIAN HILL BOULEVARD	HARRISON AVENUE TO 1ST STREET
TWISTED PAIR	INDIAN HILL BOULEVARD	AUTO CENTER DRIVE TO AMERICAN AVENUE
PROPOSED FIBER	COLIMA ROAD	STONER CREEK ROAD TO BATTALION 12 FIRESTATION #145: 1525 SOUTH NOGALES ST, ROWLAND HEIGHTS, 91748 (T1 LOCATION)
TWISTED PAIR	SAN ANTONIO AVENUE AND LA VERNE AVENUE	SIGNAL GOES BACK TO CENTRAL
TWISTED PAIR	TOWNE AVENUE AND ALVARADO STREET	SIGNAL GOES BACK TO CENTRAL
TWISTED PAIR	ARROW HIGHWAY	RENNELL AVENUE TO EUCLA AVENUE
TWISTED PAIR	BADILLO STREET	CYPRESS AVENUE TO COVINA AVENUE
TWISTED PAIR	BONITA AVENUE	ARROW HIGHWAY TO EUCLA AVENUE
FIBER	ARROW HIGHWAY - CATARACT - 2ND STREET	WALNUT AVENUE TO LOCAL CONTROL CENTER
ONLY CONDUIT AVAILABLE	COVINA BOULEVARD	TERRACE DRIVE TO CLIFFSIDE DRIVE

**SAN GABRIEL VALLEY TRAFFIC FORUM
PROPOSED & EXISTING HARDWIRE COMMUNICATIONS**

Connection	Street Name	Limits
Twisted Pair	Main Street	Atlantic to El Molino
Twisted Pair	Fremont Avenue	Alhambra Rd to Montezuma
Twisted Pair	Mission Road	Fremont to East City Limits

**SOUTH BAY TRAFFIC FORUM
PROPOSED & EXISTING HARDWIRE COMMUNICATIONS**

Connection	Arterial Street Name	Limits
Fiber	Hawthorne BI	Century BI to Redondo Beach BI
Fiber	Redondo Beach BI	Hawthorne BI to Artesia BI

EXHIBIT L-4

Schedule of Deliverables Payments-Exhibit L-4

PHASE II OF THE WIRELESS COMMUNICATIONS SYSTEM (WCS) FOR THE TRAFFIC MANAGEMENT SYSTEM AMENDMENT No. 1

SCHEDULE OF DELIVERABLES AND PAYMENTS

Task/Deliverable	Unit Cost	No. of Intersections	Value (Labor & Directs)	Holdback Amounts	Aggregate Invoice Amount ¹	Deliverable Due Date (Weeks from NTP)
Deliverable 17: Group Network Layout - Draft	\$3,228	936	\$3,021,408	\$302,141	\$2,719,267	8
Final Group Network Layout -	\$265	936	\$248,040	\$24,804	\$223,236	12
Deliverable 18: Radio Installation Per Intersection ²						
18a: Hardware	\$2,661	936	\$2,490,415	\$249,042	\$2,241,373	16
18b: Cable Installation	\$2,057	936	\$1,924,978	\$192,498	\$1,732,480	16
Deliverable 19: Integration, Start-up and Testing - Per Intersection ³						
19a: Hardware	\$1,140	936	\$1,067,321	\$106,732	\$960,589	104
19b: Cable Installation	\$881	936	\$824,990	\$82,499	\$742,491	104
19c: Diagnostic Software Workstations for Cities	\$3,000	N/A - per agency - 13 total	\$39,000	N/A	\$39,000	104
Deliverable 20: Training for County Staff on Operation of Diagnostic Software			\$13,000	\$1,300	\$11,700	104
Deliverable 21: As-Built Record Documentation per Group - Final Acceptance	\$185	936	\$173,160	\$17,316	\$155,844	104
Deliverable 22: Spare Parts			\$140,977	\$14,098	\$126,879	N/A
Deliverable 23: Contractor's and Extended Manufacturer's Warranties- per Group						208
24. Subtotal			\$9,943,289			
25. Phase I Total			\$465,000			
Withhold & Invoices				\$990,430	\$8,952,859	
MAXIMUM CONTRACT SUM			\$10,408,289			

¹ The Aggregate Invoice Amount is the maximum payable by County for all the applicable Task/Deliverable after the reduction of the Holdback Amount.

² The Contractor will bill the County at the end each month for intersections which have radios installed

³ The Contractor will bill the County at the end each month for intersections which have passed the Acceptance Test Procedures